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Poor results from 2-year WP experiment

THE conclusion reached by the government's Central Computer Agency after its two-year trial of a Wordplex word processor at Darlington is that the system was not cost-effective overall for this mixed application.

The Agency's report, just published*, confirms that for typing work involving extensive revision, such as the preparation of reports, word processing equipment increases productivity by 40% to 200%. However, for general correspondence such as letters and minutes, no clear advantage was shown over the electric typewriters that constituted a control group.

Overall gains in the latter part of the trial, when most teething troubles had been cured, averaged between 10% and 70%, and this was "insufficient to justify the cost of the equipment".

The experiment was carried out on a Wordplex 7 shared-logic system with four screens at the Department of Education and Science's superannuation record office in Darlington.

The building, dating from 1970, presented serious environmental problems to do with the machine's need for air-conditioning and its sensitivity to fluctuations in the mains supply. These were largely overcome by the end of the project, however, as were shortcomings in the software, but for much of the time the system performance was "generally poor".

Increases in productivity varied widely between different typists, who were mainly quite senior, with an average age of 46. The report concludes that there is a great deal of difference in aptitude for word processing, and this also varies with different types of work. Most of the typists, but not all, were enthusiastic about the equipment, but they apparently took longer to learn how to use it than is generally claimed by manufacturers.

CCA concludes that it is necessary to have a "systems adviser" with O&M and computing knowledge available all the time, even after the initial installation period, because the work done by a typing pool is dynamic.

*Word Processing by Computer, from CCA Publications and Information Branch, Riverwalk House, Millbank, London SW1. Tel 01-211 8174.

NEWS IN BRIEF

Burroughs to build Xerox laser printer under licence

A FOURTH laser printer will shortly follow the IBM 3800, Siemens 3352/ND-1 and Honeywell PPS on to the European market. Burroughs has adapted the Xerox 9700 for marketing to its own customers and plans to take up a manufacturing licence from Xerox, while Rank-Xerox is currently evaluating the 9700 for marketing in Europe.

The 9700 runs at up to 18,000 lpm, and Xerox offers it either as an offline printer controlled by an integral minicomputer, or for use online with IBM mainframes.

A UK price in the region of £150,000 is likely.

Medical mini

COLLECTOR and publisher of pharmaceutical and medical information Intercontinental Medical Statistics has installed a Perkin-Elmer 7/32 minicomputer at its North London office. The system features 20 Perkin-Elmer terminal 1200 work-stations, to which workstation operators input raw medical data which is then transmitted to the main machine via the company's Integrated Telecommunication Access Method.

Apple II rights

APPLE has granted multinational Bell and Howell rights to market its Apple II personal computer in a specially designed version, aimed specifically at the education market. If, as is thought likely, the agreement is extended to cover European marketing, Bell and Howell will be brought into competition with ITT.

Mainframes have two-year lifespan

MAJOR product announcements from Control Data, Burroughs and ICL this week underline the fact that the life of a mainframe product line is now down to about two years before new, lower-cost technology dictates that new machines be introduced.

The Control Data offering is a system of four machines which replace all but the top-end Cyber 176 model in the Cyber 170 line. Called the 170 series 700, it features the 720 and 730 processors which have a unified arithmetic processor in which instructions and operands are combined, and the 750 and 760, which use separate arithmetic for concurrent execution of more than one operation.

The processors are built in emitter-coupled logic, and use 4K-bit MOS memory chips. Memory is organised into central memory of between 96K and 256K 60-bit words, and extended memory of 256K to two Megawords.

Major architectural innovations are featured in the first two models of Burroughs' new generation of mainframes, the 900 family.

The new machines, announced this week in the UK, are the B2930 and the B3950 (CW, March 1), and are claimed respectively to offer 70% more power than the IBM 4331 and to match the power of the 4341.

Other features of the announcement are a comprehensive unbundling of the operating software, and availability for the first time of the DMS II database system on the mid-range machines.

The most important architectural feature of the new machines is use for the first time on Burroughs mid-range machines of a four-stage pipeline similar to that used on the B68-7800 series machines.

The other radical changes are that main memory becomes a memory subsystem with multiple paths, in place of the previous single port memory, and several new processors, both industry standard and Burroughs' proprietary micros form part of the control unit.

Other significant hardware enhancements are the use of a B800-series mini to link 2900 and 3900 processors to earlier machines in the line so that disc files can be shared. The facility allows up to four processors to operate as a single unit.

The processors are built with 801 gate-per-chip TTL technology and the B2930 has one third as many components and consumes 50% the power of a comparable machine in the previous line.

Burroughs has announced radical changes in the way in which software is paid for on the new machines.

The MCP-VI operating system, together with other items of system software, has been assembled into two alternative licensed packages, SF I and SF II, one of which must be taken for each processor.

SF I includes the MCP, Burroughs' network definition language, the Gemcos message control package and one compiler, and costs £260 a month, or a one-time fee of 30 times the monthly rental, plus a substantial annual usage fee.

SF II offers several additional software products, most significantly the DMS II database system, and costs £500 a month. The program products and compilers, including a new Ansi Cobol 74, are available separately, but SF I is the minimum requirement for each processor.

Hardware prices start at £103,300 for the 2930 and £188,400 for the 3950.

System X threatened

USING tactics that closely resemble strike action taken earlier this year (CW, February 1) computer staff in the Post Office are slowing down both the development of the System X digital telephone network and the processing of telephone bills.

The two centres affected are Leeds which operates the corporation's Told — Telecommunications Online Data System — for data collection, and the Harmondsworth scientific time sharing centre, where much System X work is done.

A spokesman for the Society of Civil and Public Servants, which is organising the action in support of a regrading and improved pay claim, described the strike as "a bit more drastic than last time" and added that the two centres would be affected "indefinitely."

"We have been trying to get the Post Office to meet us and discuss our claims," he said, "but they will not do this. In addition to the Told system, we are hitting the Unipay payroll package which is used to process outside commercial work coming in to us. We offered to keep a volunteer commercial service going, but they refused to let us do so."

Threats of suspension by management have sparked off counter-threats from the SCPS that more members could be brought out if necessary.

ICL new products at Hanover Fair

TWO major new products were introduced by ICL at the Hanover Fair, which opened yesterday (Wednesday).

The long-awaited ICL 7500-based word processing system appeared as the ICL 7700, an on- or off-line terminal system which can handle concurrent word and data processing applications, and should prove an attractive competitor to IBM's 3730 Distributed Office Communications System, since the 7500 on which it is based has been a highly successful product, whereas the 3790 processor used in the DOCS has not been one of IBM's most popular products.

The new 2903-series model, the 2905 is essentially ICL's answer to the IBM System 38, and is claimed to offer considerable price-performance advantages over the existing models in the line.

● More news from Hanover — page 21.

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Motorola deal with Hitachi?

SOME indication of the state of Japanese micro development is provided by the fact that Hitachi is negotiating a second source deal with Motorola covering the 68000, 16-bit microprocessor. Despite the efforts in the micro field of the Japanese Ministry of International Trade and Industry and the heavily supported VLSI Research Association, the Japanese company has felt the need to second source a 16-bit microprocessor from a US company.

Motorola refused to comment on the deal, but it seems likely that Hitachi will be provided with complete mask sets for the 68000. As it has a very advanced specification and will be a large chip, it is unlikely that Hitachi will be able to generate its own pin compatible device from scratch.

The first 68000s are due to be produced in June says Motorola, probably in Scotland, and sampling should start soon afterward.

On target

ACCORDING to president and chief executive Wilf Corrigan, Fairchild is on target for a sales target of $1 billion by 1982, with a continuing rise in profits. Sales in 1978/79 are expected to be substantially more than $600 million.

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FROM MICRO TO MINI—IT'S ALL AT COMPEC EUROPE...

AN increase of 20% in the number of companies participating and the volume of space booked at this year's exhibition re-emphasises the position of Compec Europe as one of Europe's leading specialist exhibitions in the field of computers, peripherals and small systems.

Compec Europe '79, which is again being staged at the Centre International Rogier in Brussels, will take place on May 8, 9 and 10 and will feature 90 companies who have taken 120 stands on which they will exhibit a wide range of equipment from powerful 32-bit minicomputers down to the latest microprocessor-based systems.

Exhibitors include such well-known companies as General Automation, Harris, Hewlett-Packard, Modcomp, SEMS, France's leading mini manufacturer, and Systems Engineering Laboratories, all of whom will be showing minicomputer systems and applications software which frequently makes these configurations competitive with mainframe computers.

Another company whose products are having a major impact over a wide spectrum of the computer market is Texas Instruments. They will be exhibiting the DS 990 family of disc-based systems for commercial applications and data entry together with the Silent 700 range of portable data terminals. One of these, the Model 765, incorporates TI's bubble memory which retains data even when the power is switched off.

Inevitably, microprocessors will be very much in evidence either as a component in specific items of peripheral equipment such as the micro-controlled magnetic tape unit recently announced by EMI Technology, or as the basis of personal computer systems.

Companies exhibiting such systems will include Tandy, ITT Electronics Benelux, Lugabax, who will be showing the LX500 which made its debut at Sicob, and Data Applications International, who have just secured an order for 1,000 of their personal computers (CW, April 19).

Still in the micro field, INCAA BV of Apeldoorn in Holland, who have successfully exhibited at the last two Compec Europe shows will be introducing INCOS, a Eurocard-based microprocessor system suitable for use in a wide range of scientific and industrial applications, and the INCAA 2000 office system which incorporates a dual mini-floppy disc and a daisy wheel printer.

The level of participation by Belgium and Dutch firms in Compec Europe is increasing, which is as it should be. Companies such as Arelco, Barco, Cable Print, Fimeco, Heliograph, and Teleprint Benelux will be showing a wide range of peripherals and computer products.

Naturally the British influence is still considerable, and UK companies which will be showing their products include Clifer Systems, CPU Products, Penny & Giles, Quest Automation, Rair and Modular Technology — without whom no Compec Europe would be complete.

An interesting newcomer whose participation emphasises the importance of Compec Europe as a systems show in the widest sense is Logica Benelux. This company, one of the largest consultancy and systems house organisations in Europe, will be demonstrating its capabilities in the fields of mini and micro-based real time systems, data communications networks, packet and message switching systems. A number of software products will also be presented.

All in all, Compec Europe '79 will have much to interest computer professionals, ranging from those who are working in mainframe installations through to the growing number of people engaged in designing and building small micro-based systems.

Briefing

GEC into desk top business

GEC looks like moving into the desk top commercial computer business following an agreement signed in the US between GEC Enterprises and Randal Data Systems of Torrance, California. Under the agreement GEC is to buy desk top machines to sell in the US through its newly acquired subsidiary, A B Dick, but will also be granted a European manufacturing licence if it commits itself to buying at least $11 million worth of kit over a 42-month period starting in September.

The licence will enable machines built by GEC itself to be sold anywhere apart from the US.

ITT offer

ITT plans to offer between 15 and 20% of the stock of its UK subsidiary Standard Telephones & Cables on the London Stock Exchange later this year. The move mirrors its action in Germany two years ago when it offered 14% of Standard Elektrik Lorenz on the Frankfurt exchange (CW, May 5, 1977).

Into space

SPACE research scientists in the US, the UK and the Netherlands involved with the International Infra-Red Astronomy Satellite project are to use an ICL 2960 system currently being installed by the Science Research Council at Chilton, Oxfordshire. The 2960 will process 400 million bits of data every 12 hours from the satellite.

Development tool

A NEW microprocessor systems development tool has been introduced by National Semiconductor as an addition to its Starplex development system range. Called the In-System Emulator, it can support a variety of target microprocessors, and allows emulation of two micros simultaneously.

Greenock grows

IBM is to extend its plant at Greenock in Scotland that builds display terminals for IBM customers all over Europe.

2905—revamp of the 2950

EMPHASISING the flexibility of ICL's 2900 hardware, the company's new 2905, launched at the Hanover Fair (CW, April 19) turns out to be a repackaged 2950 with an enhanced version of the 290X series Exec operating sytem and no facilities for running VME/K. The 2905 is attractively priced to meet the requirements of 2903 users running out of power, and comes with the microcode, called DME/2 on the 2950 and 2956, which enables the 290X series software to run on the larger machines.

The enhanced version of the Exec operating system, called Exec 5S, includes microcode assists for RPG II and disc accesses. The RPG II assist looks as if it is aimed at IBM System 3 users uncertain about moving to IBM's new System 38, where they will have to convert to the enhanced RPG III.

Where the 2904 is limited to EDS 60 disc drives, users can attach 100 and 200 Megabyte EDS drives to the 2905; the maximum memory capacity offered with the machine is 224K 24-bit words, compared with 192K on the 2904.

Although primarily a marketing move, and offering little more than the announcement of DME/2 gave to 290X users on the 2950 and 2956, the 2905 is a

● Turn to page 5

Messerschmitt likes 2900 aviation system

A MAJOR success with the West German planemaker Messerschmitt Bölkow Blohm, MBB, has given ICL a hardware-software package which it hopes to sell to other aircraft companies, including British Aerospace.

MBB is a major IBM user with several 168s and 3033s, but runs its Belinda components stack control system on ICL hardware. It used System Tens for the application when ICL acquired Singer's West German subsidiary, but the software has since been translated to run on ICL 2903, and currently runs on a 2950 under DME and three 2904s.

However, MBB is now planning to upgrade the 2950 to a 2956 and to install a second 2956, running under the DME/2 emulator for the 2903 Exec operating system. The system will then consist of a 2956-2904 complex in Munich and in Hamburg, and a 2904 in Augsburg. The processors support multiple 7502 terminals, and one of the 2904s alone is supporting 25 terminals.

ICL and Thorn in viewdata link-up

ICL and Thorn TV rental have joined forces to produce a mainframe-based viewdata type system called Thorntel which uses Cream, a new ICL aid for developing customised interfaces to terminals and networks.

Thorntel was developed to provide an information management system for use in TV rental showrooms throughout the country, based on Thorn's 1904S in Swindon. The colour and graphics potential of the standard TVs used in Thorntel are anticipated to be of particular appeal as a business terminal.

Sets for Thorntel will rent at about £25 a month and the Cream interface costs about £7,000.

Cream is a development of ICL's Letchworth Development Centre. It consists of a family of boards based on Intel 8085 micros, handling specific tasks such as 2900 peripheral interfaces, protocol conversion and 1900 or System 4 peripheral communications.

According to Jack Houlds-

● Turn to page 9

Politicians told 'Keep out'

POLITICIANS should stay out of business — they should leave it to the businessman and concentrate on organising markets. That is the view of part-politician and part-businessman Basil de Ferranti (pictured above) in an interview with Rory Johnston which appears on page 18. He describes Inmos as "a ground-nuts scheme — a figment of Socialist imagination" that will "quietly die" in the face of competition.

1Mbit bubble memory from Intel

INTEL this week launches its 1 Megabit bubble memory, as predicted (CW, March 8). The division producing the device, Intel Magnetics, claims it is the first commercially available memory of this capacity. It is the division's first product since formation 17 months ago.

Unlike the developments in bubble technology announced recently by Bell (CW April 12) and IBM (Micro News this week), the Intel part will use conventional technology in its manufacture.

It is being introduced with a complete set of support circuits that, according to Don Bryson, Intel Magnetics marketing manager in Santa Clara, California, will allow systems manufacturers to construct systems based on the company's range of microprocessors.

ELECTIONVIEW

HOW will the new government cope with the UK computer industry and the advance of the micro? This week Computerview becomes Electionview and each of the three major parties present their plans and policies for the age of the micro and high technology.

Pages 2/3

INSIDE THIS WEEK'S CW.....

The introduction of IBM's 4300 series has proved one of the most important developments on the computer scene. In this month's International section Fred Lamond analyses the impact of the event on the computer market, on users, and on IBM's competitors. Other features include a survey of computers in the Pacific and Hong Kong, a report from Hanover by Tim Palmer, as well as the usual round-up of the world news.
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ELECTIONVIEW

NOT since the Labour Party first espoused "the white heat of technology" in 1964 has there been such a widespread public awareness of the significance of computing not only in our work but, to an increasing degree, in other aspects of our lives.

This awareness can, to a considerable extent, he attributed to the fascination which the microprocessor appears to hold for the media — both Press and TV. But the implications of information technology and the emergence of an "information society" go deeper than the silicon chip, revolutionary though it may be.

What has been conspicuous by its absence in the UK is a level of debate about these issues which could begin to match the perspicacity of the Nora report in France or of the Task Force reports produced for the Canadian government.

Whether the hurly-burly of an election campaign is a reasonable time to look for such insight in our prospective rulers is open to question.

But, over-optimistic, Computer Weekly has invited the three main political parties to outline their policies with regard to the British computer industry and the application of computer technology.

'Only Labour can ensure benefits of micro-technology'

By THE PRIME MINISTER

THE new technologies hold out the prospect of faster growth and a better quality of life for all. This is particularly true of micro-technology which will have a major impact on the lives of everybody. Only a Labour government can ensure that our people as a whole derive the benefit.

In order to take full advantage of these opportunities, we must improve our industrial competitiveness at home and abroad — and that means making sure our industries adapt to new markets and technological changes. It also means easing the costs of rapid industrial change for working people. The use of crude market forces advocated by the Tories will not and cannot achieve these changes in a way that is acceptable to the British people.

One priority sector is the computer industry and here the National Enterprise Board has played a key role. In addition to its important investment in ICL, the board has sponsored the establishment of Insac and Inmos.

Insac is especially important because it has enabled NEB funds to be channelled to boost the efforts of some of the UK's most important software developers and this is an area where British expertise often leads the world.

Inmos is a more interesting venture and it will ensure that Britain builds up an effective capacity in the vital microelectronics industry.

The development of microelectronics over the last 10 years has presented industry with a new and versatile technology. Its advantages over more conventional technology include relative cheapness, low power costs, high reliability and compactness.

It is, therefore, likely to find applications in the whole spectrum of industrial activity and will affect the level of productivity and the competitiveness of industry. It will also create the potential for entirely new products. The technology could permit a major change in British industry and its performance.

It is, however, a technology which is being adopted by many of our competitors both in developed countries and in certain of the more advanced developing nations, and if the UK fails to keep pace with other countries in adopting microelectronics we could be faced with very serious competition in world markets and hence the level of employment.

It is imperative that British industry should take steps to adopt the technology as rapidly as possible. We are already some way behind some of our major competitors, eg Japan and the US.

The government's consideration of this subject has centred on three areas — the establishment of domestic capacity for the production of microelectronics components and equipment; the encouragement of the application of microelectronics as widely as possible; and the social and employment implications of applying microelectronics.

Currently the majority of microelectronics are manufactured in the US and to a lesser extent in Japan. While it would be quite possible to import all our components from these sources — they are relatively cheap and would not impose an excessive burden on the balance of payments — there are a number of major advantages in having a domestic industry.

First the close links that can be forged between domestic industry and the chip manufacturers mean that industry requirements can be met more closely by the microelectronics industry. Secondly, in an area of technology which is as all-pervasive as this, a source of supply against all contingencies is of great importance.

Two major efforts have been set in hand. The first measure has been the creation of a £70 million scheme of assistance, the Microelectronics Industry Support Programme. This is designed to aid companies in the development and production of microelectronics components and equipment and to help develop the industry's infrastructure.

Secondly, the NEB announced in July 1978 the £50 million investment in Inmos, which has been formed to manufacture advanced integrated circuits for worldwide sale. This, along with projects in the private sector, will establish a UK capacity to supply a major part of British industry's requirements for chips and will also provide some exports.

Of greater importance, however, because it will affect the competitive position of the whole of British industry, is the need to ensure that industry applies this new technology.

Microelectronics provides the opportunity for a radical change in industrial products and practices and it is vital therefore that every effort should be made to ensure that industry is willing and able to undertake the change. The government has allocated some £115 million over the three years to 1981 to the encouragement of and assistance to microelectronic applications.

The supply of skilled manpower, particularly of computer programmers and engineers, could severely constrain the rate of application of the technology.

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'Tories will end the Post Office's complete monopoly'

By IAN LLOYD

A FEW centuries ago the measurement of time was an esoteric art confined to a few astronomers and wise men. The largest towns had a few central clocks. Guns were fired at noon. Today everyone has a watch; soon the digital watch will be an everyday possession, and in a few years' time the average man will have a digital device with complex computing and, possibly, communicating functions which we are just beginning to imagine.

The computer revolution will take place in a few years at the most, and soon the influence of computers will be all-pervasive. Few industries or occupations will not be rapidly and dramatically affected. The revolution will require an unprecedented degree of mobility of capital, labour and information.

This will not be achieved by subsidising 19th-Century industrial structures merely because they are there and because they preserve what we today define as employment. We must abandon many current political stereotypes.

In adopting and adapting microelectronics, Socialism is not going to provide the solution. In the silicon revolution the pace is being set in California where the free-enterprise system suffers from the least government interference.

The computer industry is successful there because it is based on free enterprise. A man who wants something can go out and do it. He can invest, and risk, his capital. If he is successful then the economics of California, the US and the Western world get the benefits.

This philosophy determines Conservative policy towards the National Enterprise Board and the ventures it has sponsored such as Insac, Inmos and Nexos. The NEB has too much public money. The Labour government, like a dying father endowing a prodigal son, recently allocated it the heady sum of £4.5 billion.

It is true that under Labour the traditional ability of British business to take risks and innovate has been undermined. The powers of the NEB will be restricted solely to the administration of the government's temporary shareholdings, to be sold off as circumstances permit. Once the NEB has launched a successful project we will require it to sell it off to free enterprise.

British mainframe computer companies have not been able so far to hold their own against American and Japanese giants. Initially at least the Conservatives will continue public sector purchasing policy to support companies such as ICL.

We shall end the very complete monopoly which the Post Office presently enjoys. But we will protect infant British suppliers from foreign competition by phasing its withdrawal.

First, we shall separate telecommunications and mail operations and allow them to compete. We shall develop a public sector electronic mail operation which will provide a showroom for British products.

Second, we shall allow competition in the supply and maintenance of subscribers' apparatus.

The Post Office will have to be much quicker and more flexible in vetting manufacturers' apparatus.

We will also encourage the establishment of "value added services" on lines leased from the Post Office, provided that: the Post Office does not provide the service within three years; the service conforms to relevant standards; the network is not put at risk.

The Conservatives will also guarantee orders and provide investment grants to suppliers of System X to allow them to increase productive capacity.

With the silicon revolution, a tremendous new range of opportunities will be opened up. But there will be a need for drastic changes in the structure of employment.

Information will be distributed by wire, satellites and fibre optics, creating work for trench diggers, linesmen, technicians, engineers and managers.

The potential of the microelectronics revolution is enormous, but its full development requires a society in which the maximum encouragement is given to enterprise, ingenuity, risk-taking and sheer commercial thrustfulness.

A new Conservative government will do its best to ensure that the UK will provide just as congenial an environment for British genius and innovation as "Silicon Gulch" in the US.

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THE THREE MAIN POLITICAL PARTIES AIR THEIR POLICIES ON COMPUTER TECHNOLOGY

Failure to exploit technology would put more out of work

By LORD AVEBURY

LIBERALS alone among the parties in the last House of Commons consistently stressed the need for an overview of environment and resources in any political approach to such matters as technology, industrial reform and the impact of technology on every aspect of our way of life.

The Liberal Party has never believed in short-term solutions to the problems which beset this country, preferring wherever possible to include detailed questions in the consideration of the broad implications of a well co-ordinated policy. Liberals also believe that it is advisable, wherever possible, to reduce the interference of government in matters best left to genuine experts.

There are, however, certain very important areas where government intervention is critical. If we take the concept of "information technology," for example, we must conclude that a consensus of opinion must be reached and that national resources of finance and encouragement must be made available.

The National Enterprise Board's involvement in the development of microcomputer-based hardware, for instance, must be encouraged and sustained. Liberals are convinced that this is the only way to ensure that sufficient risk capital is made available in such areas, and also — perhaps even more importantly — to ensure that the continuity essential for planning in any ventures involving advanced technology is sustained.

We are convinced of the validity of the proposals to establish Inmos; and Liberals believe that having started along this path, we should follow it with determination. The right way to success is to pick the best managers possible and let them get on with the job with minimum interference.

We very much approve of the steps which have been taken by the present government to encourage the use of microprocessors by industry. These steps have already had some effect and they should be continued.

There is, inevitably, a very important human factor involved in the introduction of microprocessors: this is the problem of reduced employment which must result. We accept that employment will be reduced; but we are also convinced that failure to exploit the available technology would in the long term cause a much worse job loss.

It is a recognised fact that every step taken along the road to greater automation has consequences in employment. Liberals do not believe that this is a matter which can be ignored.

Within the information or automation industry at the moment, of course, there is a shortage of professional manpower and of technicians. This is not something which can be solved by direct government action. It is necessary for the industry itself and the users of the industry's technology, to develop their own talent with the help which is already available.

Both of these vital points for the industry can and must be affected by education. Liberals believe that every school child should have the opportunity of learning about computing. We maintain that with the falling cost of hardware, every school should be able to afford access to its own system and computing should become a fully recognised part of the school curriculum.

Liberals do not believe that political parties have any part to play in the wage bargaining process at industry level, but we do maintain that every employee should play a part by right in the decision making which must go on in every company or industry.

The proper management of high technology industries will be a significant feature of commercial and industrial life and development for the foreseeable future. Liberal principles of sharing in both decision-making and profitability will ensure that workers and technologists at all levels have an opportunity to play their part.

Computer people at the hustings

SEVERAL computer people are fighting the General Election in their home constituencies. Among them is Simon Rowley, a salesman with Eurocom, who is Liberal candidate for Ealing Acton. A member of the party for 11 years, he has already fought in GLC and local elections.

A principal consultant with Logica, Shaun O'Byrne, is Labour candidate for Chertsey and Walton.

In Scotland, Barry Henderson, former MP for East Dunbartonshire, and a director of Glimerton Management Services, is the Conservative candidate for East Fife.

The chairman of Safe Computing, Philip Rule, will contest the Lichfield and Tamworth seat for the second time. He is chairman of the Liberal Candidates Association.

Managing partner of Insurance Systems and Services, John Waller, is the Liberal candidate for Twickenham, and in Coventry South-West, the Tory candidate is John Butcher, a regional marketing manager for General Computer Services.

Margot Dunn, administrative manager for the IDPM, is Liberal candidate for Islington Central.

Ten years ago...

COMPUTER WEEKLY APRIL 24, 1969

ICL's support policy was criticised by the industry when it slapped triple maintenance charges on some of its systems and withdrew support for others . . . The IBM 360-compatible Riad range is to be developed under Soviet control and the first models are expected in 1971 . . . The first ICL 1904A to be sold in Continental Europe has been ordered by Amsterdam council . . . The Japanese steel industry said that it owed its success in the steel production league to computer controlled processing . . . Univac intends to establish a research centre in London solely for the development of real time systems . . .

The Prime Minister

● From page 2

The government's programme of aid in this area has included efforts to increase the provision of training and re-training in the relevant skills both through the MSC and the Industrial Training Boards, and through private concerns, eg the hardware manufacturers, software houses and educational bodies.

This effort to improve the supply of skills both in the short and the longer term is expected to cost in the region of £60 million over the next three years.

The third area which the government has considered has been the social and employment implications of the application of the technology. The Central Policy Review Staff is studying this aspect and, although their work is not complete it seems clear that the more pessimistic forecasts are highly unlikely to be fulfilled and that there is much in technology which could create new employment opportunities.

What has emerged from their studies is that failure to actively apply the technology will have very serious affects on British industry's competitiveness and our ability to avoid high levels of unemployment.

1984 and all that . . . .

THIS WEEK'S prize of £5 for an example of the strange things said in the media about computers goes to C. D. Blowers of Walton-on-Thames.

Perhaps the most perilous (computer crime) is the Trojan Horse. Once someone with a grudge has mastered the system, he or she can insert a dormant instruction; the computer will then go haywire x months ahead.

The Guardian

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Downtime by Chad

Drop o' the hardware

ACCORDING to the Financial Times, the Russians have found a new source for the computer Jimmy Carter wouldn't sell them:

> The Soviet union has contracted with French companies for a data processing system based on the "Irish 80" computer.

Aha! I thought. Have all the Hennesseys and Murphys in France given up making brandy and turned to electronics? Sadly, no. I fear the FT meant "Iris 80".

Mind you, the FT did describe the Videofiche image filing system the other day, concluding this:

> The importance of a system such as this in the banking world, which is one area of business where paper is an enormous and continually more burdensome problem, cannot be underestimated.

Huh?

Mainspring hopes are eternal

I HAVE recently observed a tendency among colleagues and friends to develop FIRN, a psychological disorder caused by the generally incomprehensible effects of technology on society.

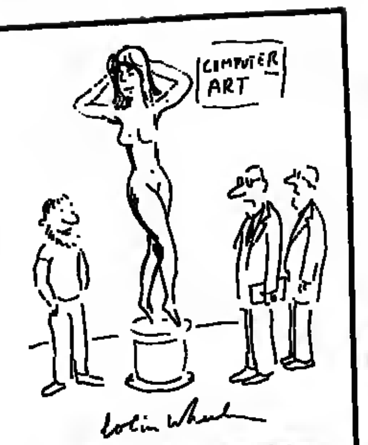
To save psycho-analysts a lot of time and intellectual effect, I have personally identified the condition I call FIRN, which stands for Function Inertial Restriction Neurosis.

A colleague of mine had a clockwork watch (remember them?). When it broke down he decided to buy an electronic digital watch as a replacement.

At first he decided that the watches available did not offer the functions he wanted, and decided to wait until one was introduced. When it was, he decided to wait until the price came down.

When it did, he realised that very soon new additional functions would be available to enhance the capability of the watch. He decided to wait. Eventually the new functions were introduced, so he decided to wait until the price came down, which he knew it would. It did, so he decided to hang on until some new functions were available. When they came, he decided to wait until the price came down.

This is the classic FIRN symptom and I just cannot think of a cure . . .



"I made it from a melted-down computer!"

Case of tiddly PROM

TO me, the most fascinating news story of the week is this item from the Wolverhampton Express and Star, sent to me by J. A. Cloke. I reprint it in its entirety:

"A Chinese medical team has developed a calculator which can suggest over 200 million different treatments for liver ailments. The patient's symptoms are fed into the calculator and, in only 13 or 14 seconds, it can identify the complaint, suggest treatment and calculate medicinal dosages."

Two hundred million different treatments? How lucky it is that this is being done in China! With 800 million people they only need one in every four to be suffering from cirrhosis in order to try out all the treatments. Otherwise they would never be able to find out which is best.

Of course, there may not be enough liver disease in China at the moment, so here is an excellent opportunity for us to boost our exports of Scotch, gin, Watneys, etc. To hell with trying to sell them computers!

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COMPUTASTARS 79

EMI scoop SW heat

After paying tribute to their skill and efficiency, Gordon Cairns invited Computastars' official scorers, George Simpson and Beverly Hanig, to present the trophies. Here, David Moreton, EMI captain, receives the men's trophy from Beverly.

George Simpson, Computastars' official scorer, presents the team trophy to Sue Howells of EMI.

TEAMS came from as far afield as Plymouth and Hayes, Middlesex, to compete in the South-West heat of Computastars, held in Bristol last Sunday.

A relatively small turnout — 14 men's teams and six ladies teams — together with the more streamlined organisation of this year's events, meant that the competition finished ahead of schedule.

The day was an overwhelming triumph for EMI, whose men's team came fourth overall in last year's competition. At Bristol, they took both the men's and women's team awards, with Steve Baker and Sue Howells winning the individual competitions.

To cap it all, EMI's second women's team were placed third in the competition, so earning themselves a place in the finals at Crystal Palace.

Full results were: In the men's team events, EMI came first with 98½ points, Westland Helicopters second with 89½, Rank Toshiba third with 72½.

In the women's team events, EMI were first with 115½ points, Rank Toshiba second with 104½, EMI 2 third with 104. All these teams go through.

The men's individual competition was won by Steve Baker of EMI with 24 points. L. ... of Mettoy came second with ... and R. Ferris of Rank Toshiba third with 21½.

Sue Howells of EMI won the women's individual competition with 43 points, with H. Harwood of Rank Toshiba second with ... and a tie for third place between Jean Gardner of EMI 2 and ... Hobbins of Gloucester County Council, each with 30 points.

A new feature in this year's Computastars is a secondary competition for teams knocked out in the first round of the heats. These teams can, if they wish, take part in specific sports events, and will have their own final at Crystal Palace. At Bristol, the events selected were netball and tug-of-war, and resulted in Exeter University, Gloucester County Council, ACT and TSB going through to the final.

Computastars is sponsored jointly by Computer Weekly and Wright Air Conditioning, and trophies for this heat were presented by Wright's Birmingham subsidiary.

The moment before the pile-up —

Big machine power on Burroughs 900s

THE policy of bringing the power of large-scale computer systems to the medium system user, as implemented in the new Burroughs 900 series (CW, April 19), applies not just to hardware features, but also to software.

The MCP-VI operating system is based on its predecessor of the same name, but has been considerably enhanced in many minor ways. It is also different in a few major respects, the most important of which is that it is now equipped to support the DMS-II database management system, which could not previously be used on medium-range systems.

This is associated with a Data Management Inquiry System, DMINQ, designed to permit non-technical users to find their way about the database. The monthly licence fee for this product is £51.

Another product previously available with bigger systems is the Workflow Management System, which overrides the MCP's automatic work scheduling procedures, allowing the user to tailor his operations to the job mix in process. This costs £26 a month.

Another enhancement to MCP-VI has improved the user's ability to define and enforce control over programs and terminals which are trying to access data files.

The pricing details for the operating system on the new machines have now become clearer. MCP-VI together with associated software is now priced separately from the hardware. The user can pay this charge in one of two ways.

He can either pay on a monthly basis, or alternatively he can pay a one-off sum together with an annual licence fee. The basic operating system package, SF I, costs £360 a month, or a one-off fee of £10,800 plus an annual fee of the order of 10%. Simple differentials are applied with the more expensive SF II package.

Prep school acquires a micro

WHILE school computing is largely confined to the secondary sector, an independent preparatory school in North London has recently acquired an Apple microcomputer, and interest in the subject is burgeoning among the boys there.

The Hall School, Hampstead, for 8- to 13-year-olds, also has among its parents John Pearce, managing director of Insac, who is to give a talk there on May 1.

The Hall was involved in pioneering work on computer education as early as 1969 when Rory Johnston, now a section editor on Computer Weekly, was a teacher there.

Several classes of senior boys had hands-on experience of a PDP-8, made available by a parent, writing simple mathematical programs in a high-level language.

Servicing takeover

THE maintenance and servicing of the Wrightline printing hand punch, marketed in the UK by Control Dataset, has been taken over by the Capital and King Group based at Richmond, Surrey. Tel: 01-940 4802.

Govt backing for London micro exhibition centre

A PERMANENT microprocessor and electronics exhibition centre is to be established in London in September, with backing from the Department of Industry.

It is the brainchild of Jeremy Prosser, managing director of Prosser Scientific Instruments, and Christopher Roberts, an economist and member of the Stock Exchange. Their idea is to provide a focal point for the producers of these devices, and for the products and equipment that use them.

A lease has been taken on 5,500 square feet of the World Trade Centre in London, and it is hoped to fill it with 250 permanent company displays.

The Department of Industry has agreed in principle to back the centre, under its microprocessor awareness program. It will almost certainly take one of the stands, and negotiations are in progress for the DoI to underwrite the whole lease.

Some 30 stands have so far been taken up, according to Prosser, by such companies as Xerox, Versatek and Marconi. No semiconductor manufacturers have yet signed up for a stand, but Prosser hopes that they will by the September 3 opening date.

Nascom 2 arrives in June

NASCOM 1 microcomputer sales since the launch 18 months ago total about £2 million, and have prompted Nascom to introduce a new version, to be known as Nascom 2.

Featuring an 8K Basic interpreter in ROM, together with an extended and improved monitor, plus expansion of the memory available to the user from under 1K byte to 8K bytes, the Nascom 2 is scheduled for formal introduction in June. It will be sold initially as a kit, but Nascom states that it will move to production of assembled systems as soon as possible.

Like the Nascom 1, the pricing of the new model is very aggressive, at £295 + VAT.

Fortran standard may allow for central core and satellites

PREPARATION of the next version of the Fortran standard by the Ansi Fortran Standards technical committee, known as X3J3, is already well under way. The last version, Fortran 77, was adopted as the official Ansi standard a year ago.

The X3J3 committee reports that a major innovation receiving serious consideration is the organisation of the language into a central core plus a number of satellite modules. The objectives are to facilitate the introduction of state-of-the-art language features, and the identification of obsolescent features, and to accommodate more readily standard facilities for major specialised application areas.

Under this arrangement, the core would be small, yet would be a complete general-purpose language, efficient in execution and easy to implement. The modules would include one for archaic and redundant Fortran features, one or more language extensions for specialised and experimental features, and one for the specialised applications.

This module may include, for example, the Isa-Ansi facilities for process control applications, and the Codasyl Fortran database facility. The committee is currently devising guidelines governing the form such a proposed applications module may take, and the mechanism whereby Fortran programs may make use of this module.

The X3J3 committee has made two other working assumptions about the new standard. Features requiring automatic dynamic allocation of temporary storage are to be included in Fortran, and a new "block-DO" control structure, including loop-exit facilities, has been adopted. This is analogous to the "block-IF" of Fortran 77, but is for repetition control rather than selection control.

The X3J3 committee is actively considering a number of specific language features for inclusion in Fortran. They are free-form program source, array operations, internal procedures, bit-string data type, record data structures, and enhanced subroutine calling mechanisms.

Sir Leon Bagrit dies, 77

THE man who founded Europe's first company devoted to automation, Sir Leon Bagrit, has died aged 77. He was a pioneer in the use of computers and was the driving force behind the Elliott-Automation group, of which he was chairman from 1963 to 1973. During that time it was merged with English Electric to form the largest grouping of electronics and automation expertise outside the US.

Sir Leon, who was knighted in 1962, was the founder of the Friends of Covent Garden and a governor of the Royal Opera House from 1962 to 1970. He gave the Reith Lectures in 1964 on the subject of the age of automation.

Revamp of the 2950

● From front page

smart move, enabling ICL to offer users a more attractively priced upgrade while further capitalising on existing hardware developments and manufacture.

Users who want to upgrade to a true 2950 will be able to do it as a field-engineering change, and conversion to a 2956 requires an additional cabinet. The upgrades will of course be charged — essentially at the difference between the prices of the 2905 and the 2950 or 2956.

The 1905 is not yet announced in the UK, but will be launched within weeks. It was shown at the Hanover Fair because several 2904 users are running out of power, and because some of the application software developed there by ICL has proved particularly attractive. A further selling point for the machine is the availability of the very mature IDMS database management system, which is also offered on the smaller 290X machines.

No prices are available yet, but in terms of power, it is between 1.6 and 1.9 times a 2904 depending on application and configuration, and about 20% more powerful than the 1902T.

The announcement in Germany was accompanied by two new models of the 2950 and 56, called the 2950/10 and 2956/10.

● ICL users meet in Bournemouth — see page 16

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GILB'S MYTHODOLOGY
DP equivalent of science's Ohm's law

OVER a decade ago, in a NATO software engineering conference, Professor Christopher Strachey observed that computer science did not possess the normal characteristics of a science. It had no measures, principles or laws of significance.

Most of us are aware of the importance of Ohm's Law for the understanding and the engineering of electrical systems. If you know two electrical factors then you can calculate a third. Watts are a function of volts and amps, or volts are a function of ohms and amps, if you prefer.

Similar relationships have long been recognised in systems engineering for the relationship between availability, reliability and maintainability, as witness the many books written on the subject which will be found in any technical library.

Software professionals, meaning people who are primarily interested in soft systems such as programs and databases, might have felt the need for something as powerful as Ohm's Law in their own work, but nothing of the sort is commonly taught or recognised.

I should like to suggest that we can perform a technology transfer to software of the above-mentioned relationship between system availability, reliability and maintainability.

I know from many years of personal use of the concepts that they have an everyday value as a tool for understanding the secrets of software.

A program, or a database, is AVAILABLE to the degree it is not in a state of failure (UNRELIABLE) and until it is repaired (MAINTAINED).

Using this relationship, we can make a number of simple observations:

1. Databases, files and software of the logical kind (programs) can apply the same rules for availability calculations as do *hardware* systems:

2. If two of these factors are fixed, for example the user's availability requirements, and the expected error rate, then we can estimate the third factor (how fast we need to be able to repair the failed system, for example); and,

3. Availability can be used as a high level system specification, to control the reliability and maintainability, even when these are individually unknown for the moment. This can be and has been used, when writing contract specifications for systems involving software.

The reader might wonder if these concepts are really measurable in practice for programs and files. They most certainly are, as I have documented at times in this column.

But just for immediate documentation, think of availability as being measured by a time stamp log of the useful working time of a program or database.

Think of reliability as being measured by the percentage correctness of the program outputs or of the file records.

Think of "maintainability" as being measured by the time it takes a programmer to fix a bug, or the time it takes an operator to recover a file using a backup copy and previous transactions.

There are many other possible measuring techniques, but these will serve to remind doubting readers that all three concepts are measurable in simple direct ways.

The reader might wonder about the use of knowing how much reliability or maintainability is required, before a programmed system is designed or implemented. Many professionals seem to take these qualities as "acts of fate," over which we have little control.

It is my opinion, and I have tried to document it in this column, that we have a great degree of control over the degree of maintainability and reliability in any system if we are aware of the need during early design phases, and can make use of the available design options, during this phase, in order to piece together a system which meets the user's requirements.

This one short column must remain woefully inadequate for making a convincing or detailed argument for this case. I can only hope to generate a certain public awareness of the fact that there is a useful relationship, and perhaps stimulate some to explore the literature and their own practical situations a little further, and a little bit more quantified.

I cannot resist leaving the reader with a related thought, from which I have had much usefulness in understanding "security" technology. It is that there is a similar "Ohm's Law" in the security arena: the same law stated with different terms.

It is that the integrity (wholeness) of any system is a function of the attacks (threats) and of the security (attack-resisting technology) design of the system.

The interested reader will find a simple formula relating these factors in my Software Metrics book, Quantitative threat analysis is not unknown, but I do wish our security experts, in their writings, would provide quantitative data.

ADR makes the Cobol development going easier

A RANGE of software packages in the Metacobol product range has been announced by Applied Data Research of New Jersey, and will be marketed in the UK by CPP. The six products are designed to take the sting out of Cobol program development and maintenance.

Cobol/OV expedites program development, by simplifying code generation, and verification, with features including test data generation and source level debugging aids. Cobol/SP is designed to enhance Cobol for use in structured programming installations.

Cobol/QDM helps quality assurance and documentation with features including formatting, Cobol text editing, and standardising and optimising facilities. Cobol/IMS does what you would imagine, offering help to both the applications programmer and the database administrator.

Cobol/CP is a product designed to enable automatic conversion between different Cobol dialects. The final product, Cobol/MP, is designed to refresh the parts other packages cannot reach, or, to use ADR's words, it "applies Metacobol to the solution of unique customer requirements".

Examples of such requirements are fulfilling local demands for portability, complicating interfaces between Cobol and DB/DC systems, expediting complex conversion and developing end-user applications languages.

All six products run on the 360 or 370 equipment. American permanent licence prices are $12,000 for the OS version, and $9,000 for the DOS version. UK prices have not yet been finalised.

MicroCobol software

PROGRAM and application software written in CAI's MicroCobol are now available from Zygal Dynamics of Chesham, which has just been appointed agent for the range. In addition to marketing the Business Operating System/ compiler, together with stand purchase ledger, nominal ledger and AutoClerk applications packages, Zygal will also be combining them into a new business system based on the Zentec display and Diablo printer, called System 90.

Why MSP opted for an Australian-owned office

BEST known for its data dictionary Datamanager, MSP has set up its first office in Australia while, at the same time, casting an interesting light on the problems of overseas software marketing.

Commenting on the formation of MSP Australia as an Australian-owned affiliate, head of MSP David da Costa said, "One of the problems of distributing software products worldwide is to provide the right level of national support.

"Distributors, by and large, do not have sufficient resources available, and wholly owned subsidiaries have a tendency to take more notice of head office than of their customers.

"The MSP International action has been to help in the establishment of local affiliates. MSP International takes a minority shareholding in the affiliate, and then leaves it to conduct its own affairs according to local requirements.

"Our only stipulation is that the standards of service and support should be at the same high level as is associated with our products elsewhere."

Based in Sydney, MSP Australia complements existing MSP affiliates in the US, Canada and West Germany and will add to Project manager and its manager as well.

On the move

SYSTEMS house Wirral has transferred its head office from Welwyn to its new development centre in Abbaga Road, Stevenage. The move occupied a year ago, and will bring all the company's staff and will be expanded over the next 12 months with additional staff and new systems development areas.

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By Peter Hewitt

End-user facilities clinch it for Ramis

NEWS that Allied Breweries has installed Mathematica's Ramis II software has once again demonstrated the strong appeal of the package's end-user facilities, even to existing DBMS users.

Allied, an Adabas site, first became interested in Ramis II for its end-user reporting facilities. An evaluation convinced the brewary that these were *superior for its purposes* to those of its pure report writers available.

Two important subsidiary factors here were the ease of use of Ramis' non-procedural language and the automatic interface it offered to Adabas.

Together these meant that the company could use the Ramis facility as a standard end-user language for reporting not only from Adabas and Ramis databases but also from more conventional datasets including ISAM and VSAM.

Allied sees Ramis playing a major role in improving productivity and plans to use it initially to report from Adabas-held marketing files.

Ramis II has now been purchased for in-house use by some 22 UK installations, of which up to about half are thought to have had existing DBMS software. One such customer, for example, was Shell, an IMS user.

A significant feature of the package for such users is its relational reporting capability, allowing inputs from IMS, Adabas, Ramis, and other files to *be freely* merged.

The system is also widely used on a bureau basis, being available on the UCSL, BOC Datasolve, and National CSS services.

Last year, Mathematica came out with a significant enhancement to the system in the form of an online capability based on CICS (Software Fila, April 27, 1978). Providing an interface from procedural languages such as Cobol, this will be complemented soon with an interface to the Ramis non-procedural language.

Also under development is an IMS/DC interface while a Shadow II interface is under consideration.

Allied Breweries has not, as yet, ordered Ramis online software and will be using the system for the moment in batch mode only.

LUCS offers file service

A NEW file management and database bureau service is being offered by London United Computing Systems (LUCS). The service is based on a system called Interactive File Manager, (IFM), developed by LUCS' parent company, United Computing Systems of Kansas City, and available on the company's Univac network in 140 cities in the US, Canada and Europe.

IFM can be used for routine file maintenance, such as sorting, file reformatting from free field to fixed field and vice versa, data scanning for illegal values, reporting, file updating and retrieval. It can also be used as a database system.

Enhanced Aims-11

AN enhanced version of the Aims-II banking system has been introduced by Arbat. The most important feature of Version 6 is that it is faster and more efficient than its predecessor — Arbat says it has measured the improvement as ranging between 20 and 40%.

Cobol Report Writer option for ICL users

A PREPROCESSOR implementing the Cobol report writer option for ICL mainframe users has been developed by a London-based software house, S+PC, of Wimbledon.

Called Philtr 2 and representing the first fruit of the company's "high level Cobol" project, it implements the standard report writer option. It is therefore fully compatible with the same facility as provided in full Ansi compilers such as IBM's.

The software is particularly intended for use on ICL 2900 systems, in conjunction with the C0 and C2 compilers. It can operate directly with IDMS and with the date dictionery.

As it generates basic Ansi Cobol, it will also run on ICL 1900 systems, on the 2903/4, and under 2900 DME.

The Cobol report writer option provides an additional Data Division, known as the Report Section, together with a powerful Generate verb which can do most of the work involved in producing a report.

Easily learnt, it can significantly reduce the amount of procedural code that has to be written as well as improving the reliability of report generating routines.

Despite the fact that it has been an optional module in the Ansi standard since 1968, it has not been implemented by ICL since the time of the System 4.

CAD marketing deal

THE Computer Aided Design Centre, Cambridge, has signed an agreement covering technical collaboration and joint marketing with AAA Technology and Specialties Company Inc, of Houston, Texas.

The agreement provides for AAAT to market Cadcentre's process design and graphics software throughout North America. In Europe, Cadcentre will market and support the vessel analysis and design and pipework analysis programs developed by AAAT.

Speeding development of engineering products

TO assist design engineers in the development of complex products, Applied Research of Cambridge has introduced a new software system called Engineering Record Management System, ERMS. It is designed to maintain an up-to-date classification of all parts used together with precise descriptions.

ERMS can assist the engineering team in the following tasks: parts classification, parts description, forming parts databases, product description, configuration control in design and production, assembly interrogation and reporting, and parts interrogation and reporting.

The system is intended for use by people who have minimal experience of computer techniques. Engineers interrogate the system via VDUs or teletypes, using a high level command language developed specially for ERMS by Applied Research. ERMS can be run on either Prime 300 or Digital Equipment PDP-11 minicomputers.

Dataskil award

ICL Dataskil has won an award for its Prospar Plus financial accounting package from the US software house International Computer Programs Inc of Indianapolis. The award commemorates Dataskil's achievement in making sales of the package totalling over one million dollars.

Assets take-over

SOFTWARE Design Associates of New York has acquired the assets of Software Systems Corp of Virginia. These assets include a number of software packages, principally the Dimanalon V range.

Structured programming 'not instant cure to ills'

"STRUCTURED programming is not the instant cure to all the software industry's problems, but with proper implementation the end results prove unanimously beneficial."

This is the conclusion drawn by Infotech from its latest international research project, which included a survey of user experience in more than 300 organisations.

The results have now been published in a massive 300 page, five volume report entitled "Structured Programming — Practice and Experience."

In two sections, the first consists of the user survey and includes in-depth case studies of users such as ICI, Hughes Aircraft, Honeywell, IBM, Air France and the TRW Systems and Energy Group. It is priced at £405.

The second section is a management report including a comprehensive set of implementation checklists to help the user validate his own software development. Also included is an extensive literature.

This section is priced at £270, while both together can be had for £595.

Hourds plugs a gap in RSX-11M ops system

PLUGGING a significant gap in DEC's RSX-11M operating system, Hourds Computing has obtained European marketing rights to a resource utilisation measurement and accounting system originally developed in North America.

Called Arsap, the software performs three related tasks.

The first is to collect individual user statistics detailing such things as terminal connect time, CPU execution time, and number of I/O requests.

These are used to produce reports covering two main areas: performance evaluation and user charging.

A feature of the former is the ability to present a detailed report to the user at the end of the terminal session, while the latter enables both a summary financial report and detailed user invoices to be prepared automatically.

First installed in Canada in May 1977, Arsap was licensed to Hourds by Calac Inc. of Riverdale, Maryland, and will sell in the UK for around £1,000.

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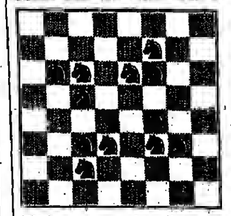
Puzzler



THE accompanying diagram shows how 12 Knights may be placed on a chessboard so as to "attack" every unoccupied square at least once. This minimum requirement theorem has been known for many years, so here is a new task for your attention.

If only one of the four central squares on a chessboard is occupied by a Knight, where must 12 other Knights be placed if: 1. all 60 unoccupied squares are to be attacked, and 2. each of the 14 Knights is to be protected by at least one other Knight?

See page 61 for solution

Tabbing in APL not all it seems

PROGRAMMER NOTES

TABBING in APL programming is a neat idea for ensuring report writing is faster. The "(TABS" command in APL allows the user to set hardware tabs at any number of positions, across the paper. In the good old days of APL development the 2741 golfball terminal was often used, primarily because an APL golfball could be used.

But the 2741 also boasted hardware tabs like a typewriter, so "(TABS" was a useful APL command.

The idea is that if an output line uses blanks to space to a tab column, the APL interpreter can instead cancel the blanks and insert the actual code for a TAB character.

However, many computers' system software will delete the tab code and instead re-insert all the spaces the interpreter has helpfully removed.

A good operating system will enable the programmer to override this by stating after log-on what type of terminal is being used.

If this terminal uses hardware tabbing, the software will leave the TAB characters. Unfortunately true hardware tabbing terminals are few and far between; the popular DECwriter II has no hardware tabs for example.

But the whole point over using tabbing is because it is far faster to tab to a column rather than physically use space characters. However common tabbing terminals have ridiculously small buffers and slowness in relation to tabbing could cause loss of data, so null characters must be inserted before the tab characters.

These slow down the input handling on the terminals, but not the speed of tabbing, as the nulls are physically ignored on printing.

One programmer was having to insert up to 10 nulls before each tab, but at least his reports were coming out with no data missing and at a fair speed.

Business planning packages for variety of machines

THREE software packages designed to help company managements with business planning have been announced by Business Research Ltd of London. The applications covered are financial modelling, budgeting and management accounting. Each has a report generator which allows managers to set up and maintain their own reporting systems.

The packages can be purchased, for prices ranging from £1,800 to £2,400, for use on a variety of computers, including the Digital Equipment PDP-11s and DECsystem-20, Data General Nova and Eclipse and Jacquard Vidcomputers. They are also being made available on a bureau basis.

OP SPOT

By Bernard Allen

HINT OF THE WEEK

Module names showing function in storage should have meaning

ASSIGNING "meaningful" names to George 2 modules is the subject of a hint from Ron Linton, computer operations controller at Manchester Polytechnic.

He writes: "The George 2 modules normally rename themselves on loading — so that more than one copy of the module can be loaded at one time — to names of the form INPA, GEOA and OUTA.

"If different copies of the modules are being used for different types of jobs, it is useful to rename to something meaningful."

By that Ron means an identifier which will indicate to the operator the function of the module in storage.

For example at a site which runs two job streams, testing and production, we might give the testing modules names of ITST, GTST and OTST for the input, run and output modules, respectively. Similarly, the production modules might be called IPRD, PRUN and OPRD, for input, run and output, respectively.

To achieve this, use the ALTER command to specify the identifier minus 1. Assign the testing modules as follows:

ALTER XKYE 767 ITSS
ALTER XKEE 783 GTSS
ALTER XKZE 781 OTSS

In each case, the second parameter is the "root" name of the module and the third is the address of the identifier within that module. The procedure is the same for the production modules, except that of course IPRD, GPRD and OPRD must be specified.

According to Ron, it is important to alter the identifier of the module before it has been used to process work. A good procedure is to load one set of modules, alter the identifiers, and dump them to tape or card for loading to the program library. Then repeat the process once.

Ron Linton also explains the reason for specifying the identifier minus 1:

"After being loaded, each module reads the 'root' name in its fixed core, adds 1 to its binary image, and then checks to see if the resultant four-character set is already in store.

"If that is the case, the module repeats the exercise until it creates a unique name. Once a unique name is found, it is retained."

Training courses are 'too inflexible'

THE trouble with many of the operator training courses run by the mainframe manufacturers is that they tend to be a bit inflexible, and fit too much into too short a period.

As an alternative, the installation might run in-house courses tailored to its own particular needs.

Or it might make use of the facilities of other sites where experienced training staff are employed on a full-time basis.

These are the views of Andy Foers, a senior operator at the Kingston-upon-Thames installation of British Aerospace and an established correspondent of Op Spot.

He writes, "Manufacturers' courses tend to cater for the small to medium-sized commercial installation, so that many sites are unable to make use of them.

"And because the courses tend to be a bit crammed, operators find themselves forgetting the content soon after they are over and have to refer to their notes continually."

In their favour, such courses, "especially those covering basic concepts, are more numerous than others and likely to be available for the trainee when he needs them."

At British Aerospace, the operators attend a number of courses held at the site of another ICL user, in addition to those run by the manufacturer and its own in-house courses.

He continues, "Before 1978, all the operators attended courses held by ICL. I, for example, have been on the ICL courses for George 2 basic and advanced operating, George 3 conversion and a shift leaders' course.

"However, due to expansion, our needs have changed to an extent and so these are now supplemented by courses held at another site within our group.

FOERS . . . "courses tend to be a bit crammed".

"There, over an 18-month period, a number of one to three day courses take the trainee operator from basic concepts through to the more advanced stages. Normally, training would begin one month after joining the company."

He points out that this method — short courses spread over a long period and supported by practical hands-on training — gives the operator a good technical grounding.

Computer room needs careful planning

I WAS interested to read the article on the computer room environment and ancillary equipment by fellow Computer Weekly columnist Focus (CW, April 5).

Although I do not go along with all his comments, he did make some points which, in my view, are quite valid and interesting, such as:

"As Bernard Allen would no doubt agree, the initial layout and design of the computer room is as important as the choice of operating system."

The design of the computer room is important, very much so in my opinion. It is essential that the area is planned by persons with practical experience of the operations department.

A badly planned computer room tends to make the operator's task more difficult than it need be; as when the printers are situated some distance from the store-room and he has to waste time fetching stationery from it.

According to Focus, many sites are willing to spend large sums on the mainframe, but are reluctant to purchase the accessories to go with it.

"Very often a visit to the computer installation is equivalent to a trip back in time. Amidst the gleaming mainframe leans a battered operator's chair, battered trolley and a waste bin which itself should have been consigned to the corporation waste."

Good stuff. For the health, safety and comfort of the operator, and to make his task easier, the accessories are essential.

And on the rest-room: "Very often a relic of earlier times, this is one area where a little thought, time and expense will generate considerable rewards."

Well, most of the installations I have featured in this column do have good rest-room facilities. But from my own experience and by talking to members of the operations fraternity, I know that this is not always the case.

As I have mentioned in Op Spot before, it is essential that operators have a comfortable rest-room where they can relax away from the noise and bustle of the computer room.

Typical rest-room, away from the noise and bustle . . .

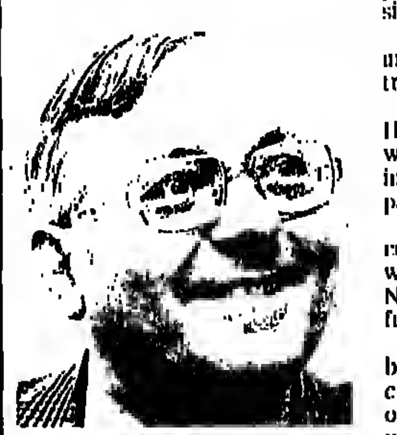
Any complaints?

OPERATORS often complain that nobody listens to their point of view. Well, Op Spot is listening and Bernard Allen would like to hear your opinions and ideas on all matters relating to computer operations.

Your letters should be sent to Op Spot, Computer Weekly, Dorset House, Stamford Street, London SE1 9LU. Telephone calls are equally welcome and Bernard can be contacted directly on 01-261 8035.

Make use of TOPS to recruit junior staff

DEREK Pinnock, TOPS operations lecturer at Borehamwood College in Herts, is currently looking for installations to take eight students for three weeks' practical training, starting on April 30.



Derek Pinnock

Ideally, the sites should be within easy commuting distance of the students' homes.

He said, "Of the eight, [illegible] live in Dunstable, and [illegible] come from Luton — where the sites have been a bit unresponsive this time — so we want sites in these areas.

"The other two are more mobile, as they have their own transport.

"John Treacy, who lives at Harrow-on-the-Hill, would be willing to travel to installations in Central London and certain parts of Middlesex and Herts.

"And Chris Little, who comes from Great Yarmouth, would like to find a site in Norwich, but is prepared to go further."

The three-week practical block of the TOPS operations course provides an ideal opportunity for installations wishing to recruit staff at junior level.

Any site willing to accept one of the above students should contact Derek Pinnock at Borehamwood College on 01-953 6024.

To keep the whole shift happy, work should be distributed fairly

THE manner in which staff are deployed between the various tasks of the operations department has a considerable bearing on the satisfaction they get from the work.

No one likes to tend the printers for weeks on end, and the shift leader should try to ensure that each of his operators gets a fair share of the technical and the less interesting tasks.

In performing this function, he has to take a number of factors into account, including the personality of each team member, the size of the installation and the shift system used there.

For the harmony of the shift and the well-being of the installation as a whole, it is important that the operators who work [illegible]

At sites where the conventional eight-hour shift system is used, a week in each area is about right for many operators — after that a change is rather pleasant. Consider what each section demands:

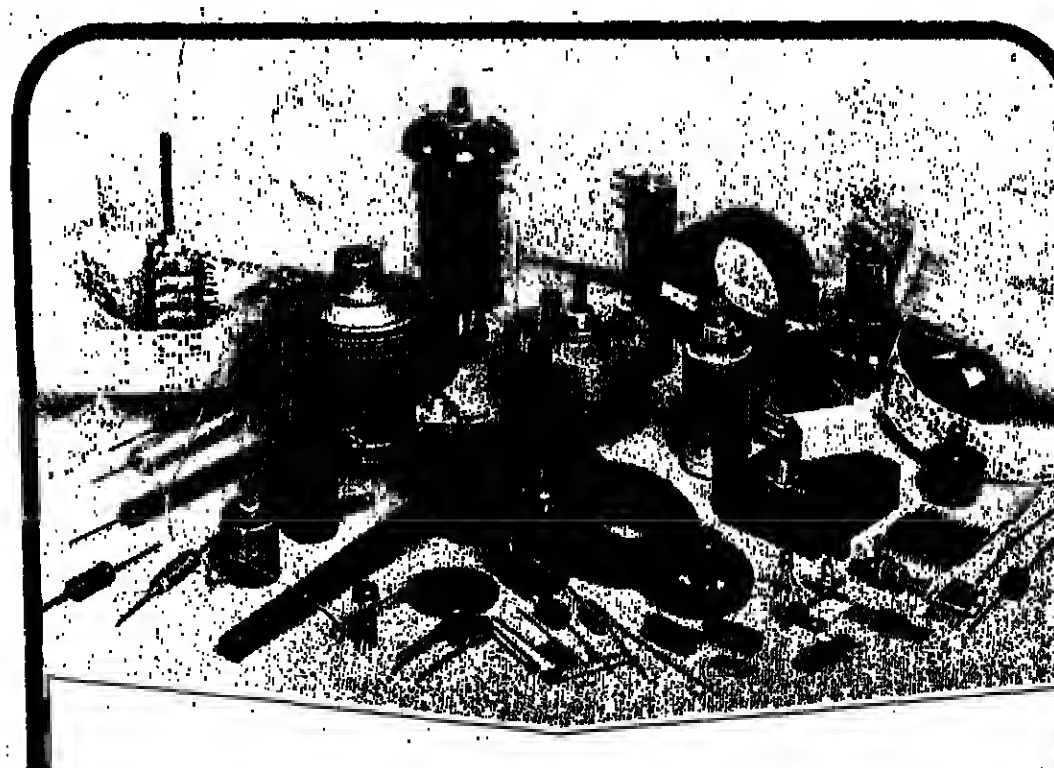
The main console calls for concentration and diligence. Here he must make use of the operating system facilities and co-ordinate the team in order to optimise throughput.

To that end he is constantly in touch with his colleagues, checking that discs and tapes have been brought from the library, asking if the correct paper is loaded on the right printer, and so on.

And should the system go down, he is the person who has to carry out the recovery procedure in order to resume the service to the user as quickly as possible. Any operator who has run a large testing system will appreciate what it is like to retrace numerous loops and to start the system any number of times on a Monday morning.

A week of that can make the printer area seem like heaven. But after spending a week carrying stationery from the store, loading it on the devices and cleaning them, a change is once again as good as a rest.

A considerable amount of flexibility is [illegible] which use the [illegible] tem. Every [illegible] take it into [illegible] very long [illegible] one [illegible] shift [illegible] tors to [illegible]



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SOVIET FOREIGN TRADE ORGANISATION

Racing into a get-up-and-go business

FOR a fast-moving business such as computers, motor racing provides the right touch of get-up-and-go. Several companies in the industry have dabbled in sponsorship and now two more are taking that exhilarating path.

The European services group GSI is sponsoring the UK round of the European Saloon Car Championships which is due to take place at the Brands Hatch circuit in Kent on Sunday, April 29. It looks like being an interesting event with entries from BMW, Mercedes, Porsche, Renault, Opel, Citroen and Ford.

Where are the British cars in this UK round? Ford, I suppose, but will their car come from Dagenham or from one of the European plants?

The other company to get into car sponsorship is Peter Scroggins Ltd, the Windsor-based group which specialises in systems using Honeywell's Level 6 mini and factory management systems and consultancy. PSL has signed up with Aston Martin distributor Robin Hamilton, of Fauld, Staffs, to sponsor the cars during the 1979 season. The first race at which the PSL logos will be seen will be the World Manufacturers Six Hour event, at Silverstone, on May 1.

Already well into the racing game is Scicon Micro Systems, whose Zilog Z80-based system, designed to aid the running of the car (CW, July 13, 1978), was used for the first time in a Formula One event on Easter Sunday. This was the Race of Champions at Brands Hatch when the Arrows A1 car driven by Jochen Mass, achieved fourth place.

The Scicon system is mounted on the car during practice to check suspension, acceleration and speed. With the help of the information gathered, mechanics are able to make the necessary adjustments to get the best performance out of the car.

Newspaper keyboarding dispute for arbitration

THE THORNY question of whether journalists should get extra pay for typing their stories directly into new computer typesetting systems is to be settled in the case of one Canadian newspaper by a San Francisco lawyer to whom both sides in the dispute have turned for arbitration.

Both the management of the Vancouver Sun and the journalists' union, the Newspaper Guild, have agreed that the decision of the lawyer, John Kagel, will be binding. The outcome is expected to have major repercussions throughout the Press in Canada and the US, where nearly all papers now have "direct input" systems. Proposals to introduce such a system at The Times are the root of the current troubles in London.

In their submission to Kagel, Vancouver Sun journalists have claimed that their jobs have become more difficult with the new equipment because of extra strain, additional duties and the many problems involved when the system is not working. They should get extra pay for having to learn new skills, they claimed.

Management witnesses, on the other hand, claimed that the journalists' jobs were no different from when they were working with typewriters and pencils. According to one manager, part of the difficulty with slow response time had been caused by reporters filling document queues with "junk, like drawings of choo-choo trains, games, social messages and poems."

Brian Brooks, a lecturer at the University of Missouri School of Journalism, testified that he had carried out a study of the jobs of 137 sub-editors at 42 newspapers using direct input, and concluded there was no significant difference in the time taken by the two methods of editing.

This is surprising, as it is widely agreed that while reporters find that typing on screens, with their word processing functions, is easier than on typewriters, editing on screens is actually slower and more cumbersome than with paper and pencil. Screen editing is of course the more economical method, as the pencil marks have to be keyboarded by someone else.

Brooks admitted that his study could not claim to be disinterested, as it was financed by a company that trains management for the new technology.

Comparison between the Vancouver Sun and other papers is complicated by the fact that some other managements have been describing increases given to their staffs as due to new technology, in order to get around government pay controls.

Viewdata link-up

● From front page

worth, manager of the Development Centre, Cream is a practical example of ICL's approach to communications and networking philosophy.

Although ICL has not committed itself to a standard network approach, such as IBM's SNA or Burroughs' BNA, the availability of micros means that protocol conversions and terminal interfaces can be planned to meet any internationally agreed or user required standards.

Houldsworth said ICL was committed to the concepts of "open working" networks and its mainframes were designed with channel interfaces that isolate the mainframe from terminal and protocol changes.

● A viewdata system for in-house use by private companies has been developed by Philips Data Systems based on its P857 minicomputer with 128K of store and one or more 70 Mbyte discs.

Prices start at £89,400 for a system with eight access ports and capacity for 10,000 pages, while 24 ports and a 240,000 page capacity cost £142,000.

Philips expects to have the first installation by the end of the year, probably involving a medium sized company buying a 16 port, 80,000 page system for £108,000.

Software was developed at Philips' research laboratory at Redhill between 1975 and 1977 and optimised for the P857 at another company laboratory in The Hague.

Strike halts Laces operations

THE latest casualty in the strike by Post Office computer staff at Leeds and Harmondsworth (CW, April 19), which has already halted the inflow of over £100 million in telephone bill charges and System X development, is the Laces cargo system at Heathrow Airport. It ceased operating last week when over 30 computer staff, members of the Society of Civil and Public Servants, walked out over what were described as threats of suspension. No talks are taking place between the two sides but a spokesman for the corporation said that "proposals would be put forward to the union in the next week or two".

Unipart installs voice response system

UNIPART, the BL components division that supplies parts for Leyland cars, is to install a voice response system called Hotline that will enable Unipart's 239 wholesalers to enter orders while being informed immediately of stock availability.

Hotline was developed jointly by Unipart and voice response specialists Menzies Communications Ltd, and will replace an existing system where orders are telexed or telephoned and the data captured manually at Unipart's computer centre at Cowley.

With Hotline the wholesaler himself will key orders using an alphanumeric keyboard terminal that attaches to a telephone fitted with a Post Office 95A jacksocket. The terminal will also incorporate an amplifier and speaker.

The equipment at Cowley will be based on the MCS Mascot voice response unit which involves a Digital Equipment PDP-11/03 processor linked to an audio disc holding responses recorded by a human voice. Mascot is built in the US by the Periphonics Corp of Long Island, New York.

The Mascot system at Cowley will also include a 15 Megabyte disc store holding records of all Unipart stock items, and this will be interrogated when a wholesaler keys an order. The voice response unit will then tell the wholesaler if he has keyed a valid stock number, will inform him of availability of an item and will immediately confirm his stock allocation.

Orders will be recorded on magnetic tape by the system and transferred to Unipart's 1904S mainframe for processing.

Centronics expands in Ireland

CONSTRUCTION has started on a 60,000 square feet addition to Centronics' existing 75,000 square feet factory at Drogheda, Ireland, which was opened last November (CW, December 7, 1978).

Centronics president, Robert Howard, said, "The expansion will effectively triple the firm's European-based printer production capabilities."

Due to be completed next January, the new building is designed for the assembly of printers, printed circuit boards and sub-assemblies. The R&D Engineering Group in Ireland is also to be expanded to develop products specifically designed for European standards and applications.

Surrey power sharing plan

A PLAN to share computer processing power is being considered by Surrey County Council and the 10 district councils in the county. A joint working party has been set up to consider four methods of co-operation. These are: To retain present computer systems and co-operate more fully; the district councils to install terminals linked to the County Council's Univac 1100/10; the district councils to form separate consortiums; and the installation of remote job entry terminals first to input data with processing taking place on the county mainframe.

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00-7311	Storage Module Controller	£4150
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00-7362	64MB Storage Module Disc Drive	£5600
00-7364	128MB Storage Module Disc Drive	TBA
00-7366	256MB Storage Module	TBA
00-7303	RKO5 Adaptor Cable	£45
00-7346	Refurbished 40MB Cartridge Disc Drive CDC9746	£4500
00-7320	Refurbished 20MB Cartridge Disc Drive Memorex 660	£4000
00-7310	Disc Controller for 7320/7346 Disc Drives	£3000
00-7312	High Quality performance specification storage module controller for 7362, 7364 storage module disc drives	£7000
00-7359	Storage Module Disc Sub-System Includes 1 x 7312 Controller, 1 x 7364 128MB SMD all cables, connectors and free standing cabinet	£24000
00-7300	Short Disc Drive Cabinet	£400

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PART NO.	DESCRIPTION	PRICE
00-7505	Line Printer 1/F short	£385
00-7506	Line Printer 1/F Long Line Driver	£385
00-7510	Hyterm KSR Terminal	£2500
00-7735	30 CPS LA36 20MA	£895
00-7736	30 CPS LA36 EIA Numeric Cluster	£1010
00-7534	LA 36 Conversion Module to convert LA 36 to 1200 baud terminal with many added features. (Microprocessor based)	
00-7530	300 LPM Band Printer	
00-7560	600 LPM Band Printer	
00-7590	900 LPM Band Printer	
00-7740	Superterm KSR Terminal 60 CPS OPT 'D'	
00-7741	Superterm KSR Terminal 120 CPS OPT 'D'	
00-7742	Pedestal for 7740/7741	

MAGNETIC TAPES AND CONTROLLERS

PART NO.	DESCRIPTION
00-7419	Controller and 1st 9 Track NRZ1 Mini Tape Deck
00-7418	Additional Deck for 7419
00-7430	Controller & 1st 9 Track NRZ1/PE Switchable Maxi Tape Deck
00-7431	Additional Deck for 7430
00-7400	Cabinet to house items mentioned above

PAPER TAPE AND CARD DEVICES

PART NO.	DESCRIPTION
00-7600	Paper Tape Reader 350 cps with PDP11 Interface
00-7601	Paper Tape Reader 500 cps with PDP11 Interface
00-7602	Paper Tape Reader 700 cps with PDP11 Interface
00-7603	Paper Tape Station Including 350 cps Reader, 70 cps Punch, PDP11 Interface
00-7604	Paper Tape Station Including 700 cps Reader, 70 cps Punch, PDP11 Interface
00-7660	300 cpm Punched Card Reader
00-7661	300 cpm Punch Hole/Optical Mark Sense Reader & PDP11 Interface
00-7632	E1A RS232-C Serial Interface for 7603/7604
00-7612	Interface for 7660

MEMORIES AND INTERFACES

PART NO.	DESCRIPTION	PRICE
00-7232	16KW DEC. Mos Memory MS11JP	£700
00-7235	16KW DEC. Core Memory MM11DP	£1200
00-7237	8K DEC. Core Memory	£850
00-7236	PM1116 16KW Plessey Core	£1100
00-7264	32KW Fungus Mos Memory	£1200
00-7265	64KW Fungus Mos Memory	£2000
00-7266	256KB PDP11/70 Memory including chassis power supplies etc.	£10150
00-7267	512KB PDP 11/70 Memory including chassis power supplies etc.	£14540
00-7268	1 megabyte PDP 11/70 Memory including chassis power supplies etc.	£24250
00-7217	M7850 Parity Module	£100
00-7820	Single Asynchronous Interface	£365
00-7821	Single Asynchronous Interface with clock	£385
00-7822	Dual Asynchronous Interface (2 discreet lines)	£485
00-7823	Dual Asynchronous Interface with full modem control	£535
00-7824	Quad Asynchronous Interface 20MA/E1A (4 discreet lines)	£600
00-7825	Octo Asynchronous Interface 20MA/E1A (8 discreet lines)	£1200
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PART NO.	DESCRIPTION	PRICE
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PART NO.	DESCRIPTION	PRICE
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00-7903	DRV-11-B 16 bit parallel interface DMA.	£390
00-7904	16 KW Mos Memory	£845
00-7905	64K byte Mos Memory; 300 Nanosecond access, 450 nanosecond cycle; card extractors, LS1-11 QBUS compatible; one quad height slot.	£1050
00-7906	Cartridge Disc Controller: Interfaces most RKO5 compatible disc drives to LS1-11. Includes cable; one quad slot.	£1650
00-7907	Floppy Disc Controller: LS1-11 for most 8 inch floppy disc drives. Uses Group Record Coding for storage of up to 650K bytes per disc side. Controls up to 4 drives.	£1080
00-7908	Dual floppy disc sub-system.	£2575
00-7909	Line Printer Controller: parallel Interface for centronics, data 100, dataproducts and other line printers; Includes 8 meter data cable; LS1-11 QBUS compatible; one dual height slot. Specify printer type.	£195
00-7911	Multiple serial Interface, 4 Asynchronous serial 1/F on one dual card one serial line may be used to drive parallel printer.	£305
00-7912	Card cage and backplane; 8 quad (16 dual) height LS1-11 QBUS slots; wedged sockets for easy module insertion; 10.5 x 4.64 inches x 11.62 inches.	£250
00-7913	LS1-11 Microcomputer: 61,440 bytes RAM operator's console, line frequency clock, asynchronous serial 1/0 module, extended instruction set, floating point arithmetic EPROM sockets, QBUS terminator, 8 quad slot backplane and switching power supplies. Eleven extra dual slots.	£2647
00-7914	Terminator/Bootstrap Clock module: provides LS1-11 QBUS termination; power-up sequencing; front panel halt/enable switch and indicator; real-time clock; PROM sockets; one dual height slot.	£200

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00-7009	9 slot back plane	£365
00-7049	Unibus jumper	£75
00-7085	15pt Unibus cable	£130
00-7810	BPO Protect Cable	£75
00-7230	Ball expansion chassis	£2000

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4. Prices include 90 days return to depot warranty.
5. Maintenance contracts may be arranged on all products excluding LS1 11 compatibles.
6. Prices for deliveries outside the United Kingdom are F.O.B. Leeds.
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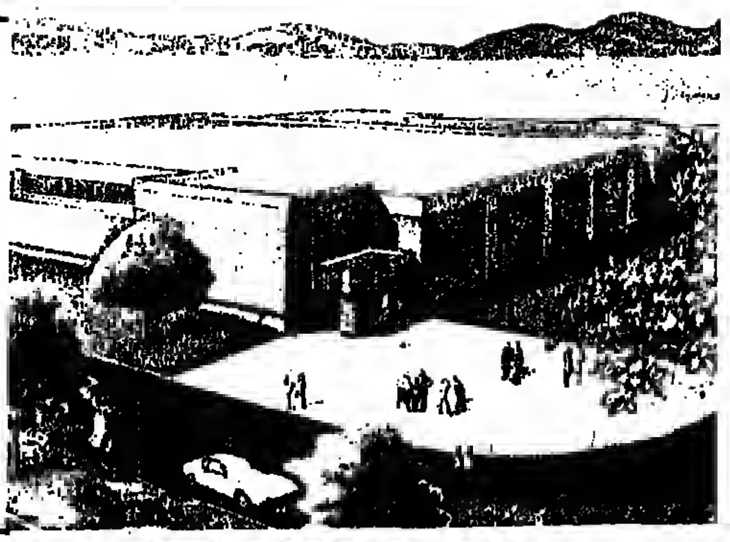
MICRO NEWS

By Martin Banks

Moving soon to Phoenix



CONTINUING the trend among resident companies in California's overcrowded Silicon Valley to expand elsewhere in the US, Intel is to relocate two of its divisions to Phoenix, Arizona.

Our picture shows an artist's impression of the new home for the Commercial Systems Division, which is moving to Deer Valley, a north side suburb of Phoenix. The new plant is scheduled to open in mid-summer.

The other division, the microcontroller operation of the Microcomputer Components Division, will be located in Chandler, to the South-East of Phoenix.

Microsense appoints ITT 2020 dealers

THE first 10 dealers for the ITT 2020 microcomputer system in the North-West London and Home Counties area have been appointed by Microsense Computers, the regional distributor.

They are Honley Software of Buckingham, Vlasak of Marlow, R. J. Pratt and Son of Stevenage, CCS Microhire of Letchworth, Chiltern Business Analysts of Beaconsfield, Caroline House of Wembley, Comp Computer Components of New Barnet, and Courtest Software of Welwyn Garden City.

Microsense is also distributor for the West Country, and has appointed Nicomtec of Saltash and Ken Hague of Taunton as dealers.

Portable system prints instant electricity bills

THE microprocessor will soon come "face to face" with the consumer in an experiment planned by the South of Scotland Electricity Board. Trials are due to start soon in Greenock of a portable microcomputer system, developed by Plessey Microsyatems, that will present electricity users with a "bill" some 10 seconds after the meter has been read.

The bills produced during the trials will not in fact be handed to the consumers involved in the test, about half the district's 40,000 users, who will continue to be billed in the normal way. The trial bills will be processed through the Board's normal accounting services, to check for the new system's accuracy and reliability.

The trials are expected to last for some three months, after which the Board will decide whether to introduce the new approach to billing or not.

According to Tony Goodfellow, who is in charge of the development of the computer at Plessey, the system is still at a very experimental stage. No firm commitment has been made as to its design or configuration, although the first prototypes being used for the trials will be based on a standard NMOS microprocessor. He declined to specify the make or type.

Data storage will be by semiconductor memory devices, though Goodfellow could not specify the total memory capacity, "as it is still subject to changes". If the trials are successful, and the computer goes into production, it seems likely that it could provide a ready market for bubble memory devices, which Plessey manufactures.

The memory will provide each meter reader with sufficient information to deal with about 200 customers. For each customer, the meter reader will have such information as address, last meter reading, and such relevant data as "there is a dangerous dog on the premises", or that the "householders are always out". The addresses will form a route plan for the reader's work for the day. This is the same type of information already provided to each reader.

The updated meter reading will be processed by the system, and the amount due calculated, and the bill will then be printed on a built-in printer. Plessey hopes to have the system fully defined by the middle of this year.

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IBM 'quadruples' the density of bubble memories by encoding

FURTHER confirmation of the growing potential of bubble memories has come out of the recent international conference on the subject (CW, April 12). According to US reports, IBM has developed a new technique for producing the memories that offers a claimed four-fold increase in density over present devices.

It is markedly different from the approach being taken by Bell Laboratories, where film electrodes are used in place of current electrical coils to produce the magnetic field necessary to move the bubbles. The major advantages of this are to make the device smaller and more easy to manufacture.

IBM's approach to obtain the claimed "super density" is to use a method of encoding the domain walls of the bubble. By doing this, two different types of bubble can be derived that are *distinguishable from each other*. They can then be used to represent the "1" and "0," in contrast to the current practice of using a bubble to represent a "1" and an empty space in the array to represent a "0."

The storage capacity of memories using current techniques is also limited by the fact that the empty space has to be four or five bubble diameters in size to ensure its detection.

The wall encoding is achieved by inducing different internal magnetic structures into the bubbles, and stems from the company's largely unsuccessful work on lattice array bubble memories, a costly and complex technique that IBM is now dropping in favour of the wall encoding technique.

Beside the increase in bubble packing density made possible by encoding, memory density is further increased by changes to the chevron elements on the device between which the bubbles move.

These are half as tall and half as wide as conventional elements, so that four times the number can be fitted into the same area as on conventional memories. One reason for this being possible is the fact that the wall encoding overcomes the problem of normal bubbles repelling each other because of their similarity, and therefore being pushed into spaces in the memory array.

IBM has already constructed an experimental 16K bubble memory that has a packing density of 3.3 million bubbles per square centimetre.

The only drawback so far foreseen by IBM is that the quadrupled density leads to a quadrupling in access time, which may mean the memory will have to be partitioned.

Scots' hard sell in US

DESPITE the setback of Mostek locating its European manufacturing facility in Eire, the Scottish Development Agency has launched an ambitious plan to capture a greater stake in electronics manufacture.

Agency representatives are now on a 10-city tour of the US during which, according to a spokesman, they will be able to speak "with one voice, something for which there is a great need." This "hard sell" operation is to be based largely on a report prepared by Booz Allen Hamilton, which states that microelectronics is of "life or death importance" to Scotland. Its long term aid is to attract 15 new electronics companies to the country.

● The $80 million Mostek plants in Eire (CW, April 12) will concentrate on the manufacture of memories, industrial circuits and microprocessors, according to the company. This, logically, means 4K and 16K dynamic RAMs, probably the 3870 microprocessor family, and telecommunications devices for the European market.

PET keyboard

A FULL keyboard and numeric keypad system for the Commodore Pet has been developed by a Swiss company, Erhardt and Jost Electronic. Designed to replace the standard "compact" keyboard of the Pet, it bears a strong similarity to the unit designed into the new 16K and 32K versions of the computer launched by Commodore at Microsystems 79 (CW, February 8). It plugs directly into the original [illegible] mother[illegible] known [illegible] available [illegible] $165.

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PEOPLE AND EVENTS

By Judith Morris

Sim McCandless

Support for Gemini

With the creation of Gemini Computer Systems' support group, several new appointments have been announced. **Brian Broderick**, who was formerly responsible for marketing in Gemini's northern commercial branch, has joined the support group, as have **Charles Petey** and **Ray Westoo**, who were previously managing consultants in the Southern commercial and Northern industrial divisions respectively. Ray Weston has also become responsible for professional recruitment and marketing at the newly-opened industrial systems division in London.

Doug Minto, who has spent the last ten years with British Airways as a computer terminal systems manager, has been appointed general manager of support services for Magnuson ATC.

Stephan Watsoo has been appointed as Northern sales manager with Sensors and Systems. He was previously Midland area manager with Brannan Thermometers.

Redifon team for Irish subsidiary

NEWLY-FORMED company, Redifon Computers (Ireland), has been established in Dublin to provide sales, systems and engineering support. Redifon Computers will be selling their R-range of data entry and distributed processing products in Ireland through the new company. The operation will be based initially in Dublin, and further offices are planned for Cork and Belfast.

A number of promotions and new appointments accompany the formation of the Irish subsidiary. General manager of the company is **David Sim**, who was formerly commercial telecommunications division regional marketing manager with Collins Rockwell, and prior to that was an area sales manager with Singer.

Systems support manager for Ireland is **Mike Pilley**, who joined Redifon in 1975 as a systems analyst for the Northern branch. **Ian McCandless** has joined the company as systems engineering manager. Previously he was employed by Computer Technology in Belfast, where he was sales and service engineer.

David Lewis has been appointed [illegible]. His appointments include territory manager with Burroughs, and a similar position with Lamson Paragon. Systems engineer for Ireland is **Joe Barrett**, a former customer service engineer for Redifon's Midlands branch.

A new instructor and demonstrator with Redifon Computers (Ireland) is **Susan Doyle**. She was previously a key edit supervisor with Combined Insurance Company of Ireland. **Brid Egan** has been appointed as office administrator.

Minto Vigor

Dave Vigor has been appointed by Redifon Computers as manager of international systems support. He will be responsible for all systems support activities outside the UK. He joined the company as a systems analyst, becoming central software support manager and his last appointment was that of manager of the technical information organisation.

Bernard Herman has been elected as president of Okidata, a manufacturer of EDP peripheral equipment. The announcement follows the resignation of David Nettleton, Okidata's former president. Most recently, Herman was general manager of the company's disc drive division, but his background also includes positions as president and chief executive officer of Loral Corp and Trio Laboratories.

Theodor Braun, formerly president of Foresight Systems, has been named president of Execucom Systems Corp, whose headquarters are in Austin, Texas.

Mike Gough, previously a salesman with Datasolve's engineering division, has become sales manager of the company's education department.

Managing director of Eurotriner, Mike Fengeny, was the 500th engineer to attend the introduction to microprocessors course given by Microcomputer Training Programmes. He is seen (left) running his own microcomputer tests after the one day seminar, watched by J. Parr, a works engineer from Hopkin and Williams.

BOC Datasolve education HQ

BOC Datasolve education is to move to new headquarters at 9, Rochester Row, London SW1. All administration and some of the training courses will operate from the centre, while those courses which require terminal facilities will continue to be held at the existing centre in Old Park Lane. The telephone number of the new offices is 01-499 7099.

John Wilson has become systems sales manager with Plessey Microsystems. He originally joined the company as defence sales coordinator. **Stuart George**, a former sales executive for Europe with Fabritek Computer Components, has become a sales manager for special products with Plessey.

Harry Taylor has become account executive with the Honeywell contract division for Abraxas. He was formerly a lecturer with Honeywell for three years.

Mike Newman has become commercial manager for Viewdata and Teletext with Rank Radio International. He formerly worked for Rank Audio Visual, where he was marketing manager for Akai video products for the past two years. In his new position he will be based at Rank Radio's *sales office* in Chiswick.

Peter James has been appointed general manager for Virlecom. He was formerly sales manager for Singer.

David Moody, formerly a salesman with Sintrom Electronics, has been appointed a sales executive by Systems Engineering Laboratories.

Hoskyns evening

THE annual reunion of ex-Hoskyns employees is to take place this year on May 24, at the Crown Tavern, Clerkenwell Green, Slough. John Sharpe, himself an old Hoskynian, is organising the event and he can be contacted on 01-778 5302.

NCR names managers

NCR has announced a number of new appointments in its commercial and industrial sales division. **David Dally**, who was made district manager in 1978, has been appointed area manager for the London North and the Home Counties North area. Formerly DPS coordinator for NCR, **Peter Smith** has become district manager for industrial sales in London North. He has also worked for the company in West Africa.

Other appointments throughout the UK include that of **Bill Chapman** in Scotland, who has been made district manager for commercial and industrial sales in Scotland. He will be based in Edinburgh. Formerly a consultant, he has also worked for ICL as a district manager.

John Semple, who has been an NCR salesman for 18 years, has been made district manager, commercial, for Scotland and will be based in Glasgow.

In the Midlands, **Ian Sutherland** has been appointed district manager for the Midlands and West area, and **Richard Baker** has become district manager for industrial sales in Birmingham. Sutherland was formerly a senior salesman and Baker a *field manager for the company*.

Frank Vigilante has been named as the director of American Telephone and Telegraph's advanced communications service effort. Vigilante is on the board of directors of both Western Electric International and Bell Laboratories. Since working for AT&T he has worked on the development of the electronic exchanges known as the 101 ESS and 2ESS.

Richard Hellyer has joined Tandem Computers as a senior analyst. He previously worked for Plessey Communications for ten years, his most recent position being that of technical manager, specialising in real-time military systems. At Tandem he will specialise in operating systems and pre and post sales support.

DIARY

MAY 2

PTL6 v Cobol as the DP workhorse. J. Elliott. BCS Humberside branch. Willerby Manor Hotel, Hull. 19.00.

MAY 3

Charging for computer services. NCC. Mount Royal Hotel, London W1. 9.30.

AGM. BCS Chester and North Wales branch. Kelsterton College, Connahs Quay. 19.30.

MAY 4

Planning for viewdata, and colloquium. IEE, Savoy Place, London WC2. 14.00.

Machine translation software. O. Kell. BCS specialist group. Kings College, Strand, London WC2. 18.00.

MAY 9

Software aspects of system reliability and fault tolerance. Colloquium. IEE, Savoy Place, London WC2. 10.30.

MAY 10

Hardware aspects of system reliability and fault tolerance. Colloquium. IEE, Savoy Place, London WC2. 10.30.

The impact of computers on society, and AGM. BCS Kent branch. St George Hotel, Chatham. 19.15.

AGM/Program and program language design to increase software reliability. Dr B. A. Wichman. BCS S Yorks branch. Hicks Bldg, University of Sheffield, Sheffield. 19.15.

MAY 14

Prestel and its social implications. W. Morley. IEE, Savoy Place, London WC2. 18.00.

MAY 15

What is a project manager? — seminar. Association of Project Managers. Waldorf Hotel, London WC2. 10.00. Details APM, 01-789 3182.

Data processing in the Boeing company. IDPM, West London to Oxford branch. Bull Hotel, Gerrards Cross, Bucks. 20.00.

AGM/The Role of Large Computers in the 1980s. Prof. F. H. Sumner. BCS Croydon branch. Fairfield Halls, Croydon. 19.15.

MAY 15-18

Fourth European Congress on Information Systems and Networks. Commission of the European Communities. New Theatre, Luxembourg.

MAY 16

Computer aided software engineering. BCS CAD specialist group. Polytechnic of the South Bank, London. 14.00.

Serving the industry. R. Bulgen, P. Merrick. IDPM Central London branch. Pearl and Dean studio, Broadwick House, Broadwick Street, London W1. 18.00.

AGM. BCS specialist group for the disabled. Olivetti Room, BCS HQ, 13 Mansfield Street, London W1. 18.30.

A consumer's guide to word processors. ICFC. Cafe Royal, London W1. 0930.

The impact of DP regulations. BCS information retrieval specialist group. Social Sciences building, Nottingham University, Nottingham. 14.00.

MAY 17-18

ISM CUA Local authorities group. County Hall, Durham. 14.00.

MAY 18

Microprocessors — the implications for general management. Southern operational research group, Henley. Administrative Staff College, Henley. Details from Maureen George, on 049 166 454.

AGM followed by guest speaker and buffet. BCS Hampshire branch. The Potters Heron Motel, Ampfield. 19.00.

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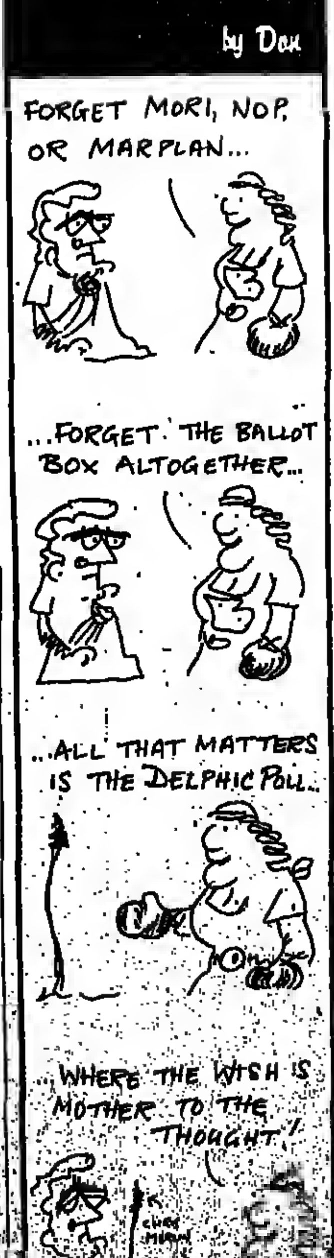

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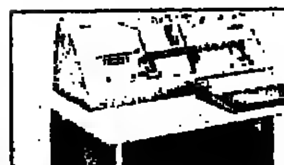

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MALCOLM PELTU REPORTS ON LAST WEEK'S ICL USER ASSOCIATION CONVENTION IN BOURNEMOUTH

DP users must form lobby with govt, EEC, says ex-chairman

UNLESS computer users become a more united and powerful lobby at government and EEC levels, important decisions affecting data processing will be made with the user voice "relegated to the background."

That is the view of former chairman of the UK ICL user association, Dr Howard Wrigley, who is the association's representative on the UK National Computer Users' Forum and a UK delegate to the Conference of European Computer User Associations.

On the subject of the EEC's influence on the data processing community, he warned users not to be lulled by the "minimal impact" to date. Community officials and national governments had originally devoted attention to the manufacturing and supply side of the industry but there was now a greater emphasis on the usage and industrial and social impact of the technology.

Except for the emergence of Euronet, he said that EEC plans for a European computer industry, as highlighted by the abortive Unidata enterprise, had come to naught. "The first attempts at a European computing policy foundered," he said, "leaving a long and more difficult haul in examining the role of the user of computing and related technologies."

The Commission officials have played a strong role in encouraging the formation of the CECUA over the past few years, and EEC user communities have now taken responsibility for co-ordinating eight areas of concern that are common to users in all countries (CW, April 5).

These are (with responsible

Dr Howard Wrigley

country in brackets): standards (UK), social impact (Ireland), contracts (Denmark), maintenance (France), data protection (Italy), telecommunications (Belgium), small systems (Holland) and education and training (Denmark).

At present the only actions being taken at European level were in terms of studies, he said, but he praised the way Commission officials had actively encouraged the formation of the CECUA, although he stressed that users themselves were still insufficiently involved and forthright in pressing for particular policies at national levels.

'Confidence crisis' faced by the CUA

THE ICL Computer Users' Association is facing a "crisis of confidence" in proving its effectiveness, according to its UK chairman, Jim Rothwell.

Speaking last week at the end of the 1979 convention, which took as its theme the challenge being posed to the DP community and society at large by the rapid changes in computing and micro technology, Rothwell said that the association itself was facing its greatest challenge as it was "not as effective as it should be."

During the past year, he said, the association had not been asked by its members to take up any significant issue with ICL, although he believed there were many crucial developments which are of concern to users, such as the pace of development of the 2900 VME operating systems and the company's policy on peripheral compatibility between the 1900 and 2900 series.

No reply has been received to an appeal at last year's convention for a statement from ICL on peripheral compatibility.

Rothwell's belief that many of the association's members did not have faith in its effectiveness was confirmed by Bob Haacke, DP manager of Berlei (UK), who commented that he was helping to establish a 2950 user group but at present it was not planned to affiliate the group to the ICL CUA because he was interested in "an action group, not a talking shop".

Rothwell said he hoped the "cynics and critics" would work within the association and he hoped that the System 4 user group, which resigned from the ICL CUA a few years ago, would soon rejoin it.

He stressed that he believed the grassroots level of the association was "pretty effective".

There are over 30 affiliated user groups organised at machine, geographical and applications levels together with a number of working parties, for example on forward compatibility standards and data protection, which Rothwell said were performing valuable work in their own fields.

He was concerned, however, about the relationship between the association's council and executive, and ICL and its own members.

"I sense that ICL is beginning to channel the UK association into dealing with UK management rather than with senior corporate management as we have done in the past," Rothwell stressed.

"Although we accept that the export markets are important to ICL, we feel it would be a grave mistake to forget the importance of the home base."

This feeling that the importance of UK users was being belittled, was heightened by the way ICL handled the announcement in Bournemouth of the 2905 and new 2950 and 2956 models which were officially launched last week in Hanover (see front page).

The news of these machines was given in passing during a conference session in which ICL directors answered user questions, and no detailed information was available in the UK.

ICL director Peter Hall, however, helped cool the situation by responding to Rothwell's criticism with the strong argument that, like other manufacturers, ICL would introduce particular models to particular countries when the local market condition was right and that the announcement at Hanover was particularly important to ICL Germany. Full details would be available in the UK within "a couple of months."

Rothwell stressed that over the next year the association's main challenge was to re-establish confidence among its members so that more matters of concern would be brought to the council's attention, and also to improve communications with ICL.

He claimed that an example of the way user pressure had paid off in the past was the development of the DME capability of the 2900 to run 1900 workloads which he said was a "user idea". He was afraid, however, that ICL did not always respond to "good advice from users" and that it was often difficult to find out where to get appropriate information from within the company.

Open system networking will pave the way to forward compatibility

THE main criterion when making the transition from one computer to another should be the maintenance of compatibility with the end-user application system rather than the traditional DP concern with hardware, data and operating system and program compatibility.

This will mean an acceptance of "open system" networking, which defines an independent systems architecture which has clearly defined international standards that enable the replacement of each element of the network without compatibility problems.

This emphasis on total systems compatibility was made by Stuart Goold, head of computer services at Nottingham University and vice-chairman of the UK ICL CUA, in a talk on the work of the association's forward compatibility working party.

Goold claimed this working party had a strong influence in the development of the DME aid for transition to the 2900 series because it had organised a conference in 1976 which, he said, "marked a turning point in relations between ICL and its users."

Delegates at this conference, which was focused on transition from George 3 to VME/B, "stated user requirements more coherently than ever before and it is to ICL's credit that they responded very quickly with DME," commented Goold.

Although he was pleased with progress on DME, Goold told Computer Weekly that he now believed amphasis on forward compatibility should switch to maintaining uninterrupted running of the end-user applications and that other levels of the system, such as hardware, operating systems, peripherals, etc should be seen from the point of view of their role in fulfilling the overall objective.

With the rapid changes in hardware it was becoming increasingly important, he said, to decouple changes in each element of the system so that transition could become a continuous activity with changes made to each element as required. DME is successful, he said, because it decouples hardware and software changes.

Jack Houldsworth of ICL's Letchworth Development Centre re-affirmed ICL's commitment to open networking and said that ICL's objective was to work within international networking agreements.

The 2900 architecture, he said, was designed with communication interface to the mainframe which enables terminal and protocol changes to be made easily through the use of devices such as the new Granada communications interfaces (see front page).

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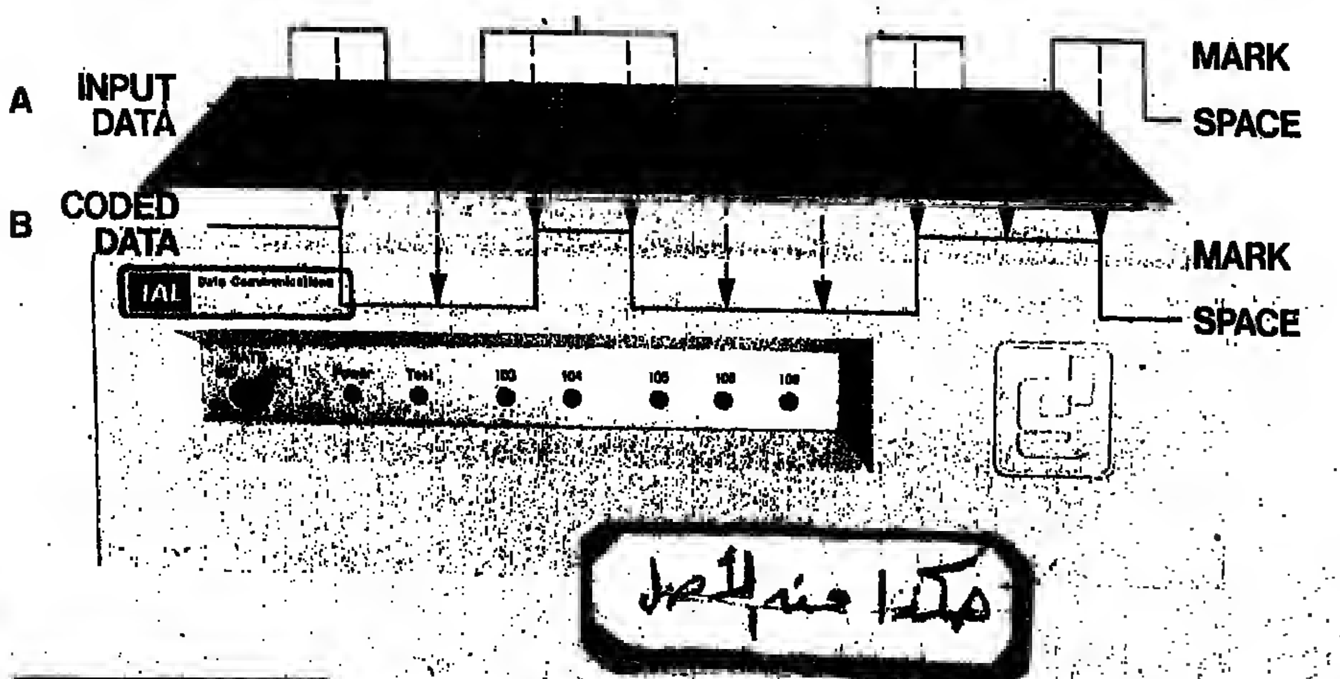

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PERKIN-ELMER DATA SYSTEMS NEWS ISSUE NO 4

Software experience ~the key to success

With the rapid evolution of 32-bit super minis as the basis of a new computing era, software capability is becoming the crucial test of supplier credibility. Perkin-Elmer can legitimately claim leadership in this area, having pioneered the 32-bit mini with the introduction of the first system, the 7/32, in 1973.

Since that time, the company has invested heavily in the development of a vast range of software to complement the advanced design of the hardware.

Now, with over 2000 systems installed, Perkin-Elmer experience in field-proven 32-bit software is unequalled in the mini-computer industry.

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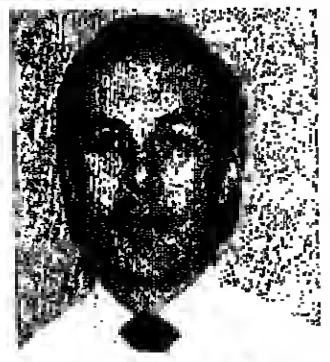
The extensive list of mature 32-bit software products includes COBOL, Globally Optimising FORTRAN VII, TC Transaction Controller, BASIC, MTM for multiterminal development facilities, ITAM for data communications, HASP for emulating the IBM HASP workstation and the OS/32 operating system.

This real-time multi-tasking operating system can be tailored to support a variety of configurations from small-scale dedicated systems to very large multiprocessor shared memory systems.

The availability of such a broad range of fully proven 32-bit software products offers indispensible reassurance to users and emphasises that for successful implementation of advanced systems, there is no substitute for experience.



New MD builds on success

Bob Jellerson, newly appointed Managing Director of Perkin-Elmer Data Systems Ltd., reports a more than triple increase in sales, from around £2M in 1976 to over £7.5M in 1979.

The Slough Headquarters of Perkin-Elmer Data Systems Ltd., has seen many changes over the last three years and the small unit of 63 staff in 1976 has now more than trebled to over 200.

Bob Jellerson joined the Perkin-Elmer Computer Division, previously known as Interdata, in 1976, as UK General Manager and has been responsible for the successful growth of the UK operation. His many years in sales and marketing with several major computer organisations, including Control Data and ITT, enables him to bring first-class experience to the Company's expansion.

With overall responsibility for Perkin-Elmer's Computer Division activities in Europe (with the exception of Germany and France) Middle East and Africa, Bob Jefferson is backed by a strong and enthusiastic marketing and support team.

Safety at sea

With increasing size and complexity of modern commercial ships, the finest training for both cadets and experienced officers is essential. But the operation of such ships has reached a level of sophistication which renders their use for training purposes not only impractical and uneconomical but in many cases actually dangerous.

As a result, there is a growing need for training simulators and the UK is in the forefront of the design and supply of simulation systems worldwide.

In particular, the advanced marine radar and navigation training simulators produced by Redifon, which are based on the Perkin-Elmer 6/16 minicomputer, have been supplied to around 50 navies and marine navigation training schools in many countries.

Trainees can carry out complete and realistic simulated navigation exercises under the supervision of an instructor who can introduce pre-programmed exercises including hazardous situations that would be impossible using the live equipment on a ship.

The simulator can be tailor-made to suit a customer's particular requirement, including the facilities of radar, direction finding, navigation equipment, depth and rate of turn indicator, wind and tide facilities, VHF radio, coastline generator, foghorns, Loran C, Omega and so on.

IMS chose Perkin Elmer

Data processing has always played a large part in the business of Intercontinental Medical Statistics Ltd., the UK Company of the IMS Group, the world's largest collector and publisher of pharmaceutical and medical statistics.

IMS data processing involves the use of large mainframes, but in 1976 the Company decided that mini computers could be used to input some of the growing volume of data and contracted for Perkin-Elmer hardware based on the powerful 7/32 processor, the first of which was installed in 1977 at the Company's South London offices.

TWENTY TERMINALS

Here, data is coded from such documentation as invoices and delivery notes and, after being checked, the information is blocked and sent weekly to the mainframe computer.

The system employed for data entry is a Perkin-Elmer 7/32 processor with 256Kb of memory with 10Mb disc drive for system files. In addition a 67Mb disc drive is used to accumulate the day's raw data from the 20 Perkin-Elmer editing work-stations. Each work-station screen is pre-formatted and transmitted using Perkin-Elmer's Integrated Telecommunication Access Method (ITAM).

Further systems have since been installed in Frankfurt and Paris.

Commodity Trading with Perkin~Elmer

A vital ingredient in successful commodity trading is the availability of up-to-the-minute information on all outstanding trading commitments.

Brandeis Goldschmidt & Co. Ltd., a founder member of the London Metal Exchange, are now able to access all the information they need at the touch of a button.

All trading at the London Metal Exchange is in Sterling. There is dealing in the various metals for dates up to three months in advance of the current date. The valuation table set up for this total 90 day commitment period is subject to constant change as market prices fluctuate.

This in itself posed a complex accounting problem, but the situation at Brandeis Goldschmidt was further complicated since the company is involved in Alloys and Ores trading, where transactions are typically in U.S. Dollars. The company also has a refining operation.

A sophisticated system based on a Perkin-Elmer 7/32 minicomputer now processes all transactions, prints contracts, updates valuation tables and provides management and dealers with accurate, up-to-date reports.

A complete range of application programs have been written in COBOL with ISAM by Software Architects Ltd., using Perkin-Elmer's event driven multi-tasking operating system, OS/32MT, and the Transaction Processing Controller ITC, as the basic processor interface.

Automatic logging of transactions which update the ISAM database are provided by the ISAM standard software and backup and restart facilities are provided from the mag tape unit.

Brandeis Goldschmidt have plans to communicate with their offices in Frankfurt and New York and to the refinery in the Midlands, so the system also incorporates Perkin-Elmer's Telecommunications Access Method (ITAM) which handles data transfer to remote devices when the system is operational.

New 16~bit CORAL

Coral 66, a general purpose programming language, is now available from Perkin-Elmer in a 16-bit version in addition to the existing 32-bit version. The price for either version is £2000 on magnetic disc or tape.

Broadly based on ALGOL with features from FORTRAN and other languages, CORAL 66 is ideally suited to scientific and mathematical applications. It is quickly learned by anyone familiar with the programming disciplines of those languages.

BUSINESS USE

Originally developed for radar applications, the formal definition of CORAL 66 was published by the Inter-Establishment Committee of the Ministry of Defence.

The use of CORAL 66 offers numerous advantages, specifically greater programming productivity, reduced development time, better documentation, greater intelligibility and program portability.

Not surprisingly, many commercial users are now beginning to realise the power of CORAL 66 for business applications.

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Common Marketeer calls for new approach to telecommunications

Basil de Ferranti

WITH controversy over the Common Market being reawokened by the election, it is interesting to meet someone who is a firm believer in the EEC and an eloquent proponent of its benefits, particularly for the computer industry. It is hardly surprising that Basil de Ferranti is keen on Europe, as he has just retired from a two-year stint as president of one of the EEC's principal advisory bodies, the Economic and Social Committee, but as both a former MP and a former managing director of ICL he is uniquely qualified to shed light on the significance of the Market both from a political and an economic point of view.

The Economic and Social Committee is a council of 144 representatives of pressure groups from all the EEC countries — groups such as trade associations, trade unions, consumer associations, and the professions. It meets 10 times a year for two-day sessions and advises the European Parliament, the Commission, and the Council of Ministers on the myriad of proposals that are being put forward all the time for the Community. Since 1973, the committee has also had the power to initiate proposals itself without waiting for the Commission (the EEC civil service) to do so.

De Ferranti (who is now deputy chairman of the eponymous family firm) was appointed to the committee in 1973 on the recommendation of the CBI, and was elected president for the two years 1976-78. He has just published a booklet describing his experiences over those two years and his thoughts on the future of Europe, and of the Economic and Social Committee in particular.*

He is very ready to doubt the desirability of government by pressure groups; this is, after all, basically undemocratic. But he thinks it is a good idea to put all the pressure groups together in one house, where they are exposed to public view, "rather than clandestinely roaming the corridors of power in search of hidden influence." They are also exposed to each other's arguments, and are forced to hammer out a consensus so that their experience and skills can make a serious contribution to public policy-making.

On the question of whether the committee has ever accomplished anything significant, de Ferranti points to the achievement of which he is most proud, the opening up of public procurement throughout the Community to all suppliers. Traditionally governments have been very nationalistic in their purchasing policies and there was a great deal of doubt as to whether open tendering could work. The ESC showed that it could.

It is the establishment of very large "home" markets, free both from tariffs and technical barriers such as variations in standards, that is the essential importance of the EEC, in de Ferranti's view. Only this way can UK industries hope to stand up against the vast US home market, and the intense coordinated efforts made by what he describes as "Japan Ltd." The Japanese, he says, having recently emerged from an agrarian economy, have a realistic "peasant mentality" which affirms the central importance of making a living. This gives them a "corporate mind," a degree of consensus through which they establish a kind of partnership between government, employers and workers, and thus enormous industrial success.

De Ferranti goes on, "There is no way we could organise a Great Britain Ltd. The tone of our society is based on wider social considerations." Therefore, he says, we need a Common Market to give us a compensating competitive advantage, and Europe is the only place we can find anyone willing to form such a market. "It would have been lovely if the Empire had worked but it didn't," he explains.

Exploiting the potential of the Market is not easy, de Ferranti goes on. Firms have to aim all their thinking towards Europe; they have to reorganise; they have to redesign their product line and get deeply involved in European standards. All these the UK car industry manifestly failed to do, de Ferranti says, but on the other hand ICI succeeded brilliantly, and is now doing £800 million worth of business with Europe.

In data processing, the Common Market has not made all that much difference, de Ferranti feels, because IBM is well established in Europe already. On the other hand, the microelectronics industry [illegible] stands a much better chance because, as he puts it, "the starting whistle has blown again." There are plenty of areas such as automatic inspection and process control where IBM is not dominant and in which the UK computer industry could do very well indeed if it really makes the effort.

But there is still a great deal to be done by UK industry in rectifying our poor balance of trade with the rest of the Community, and this is largely a question of grasping the opportunities which de Ferranti is convinced are there.

Defence is one market in Europe of great importance, according to de Ferranti, and defence procurement is beginning to get organised on a Community-wide basis, even though not all the member states are in Nato. Industry must encourage and help European joint projects in this area, he says. But getting involved in the development of European standards is probably the activity firms wishing to succeed in Europe should turn to most urgently. The fact that X25 is a European standard and not an IBM one is an encouraging sign that we can turn away from being IBM-driven.

BASIL DE FERRANTI SPEAKS TO RORY JOHNSTON

On the other hand, he thinks there is a "tremendous danger" that European telecommunications industries will remain intensely national. "We must get a European approach to telecommunications," he says, not only in exchanges but in such areas as database access and viewdata.

"Mr Basil", as he is known in the company, is firmly optimistic that new technology can generate plenty of jobs for everyone. It could also improve the quality of life by allowing people to work where they like rather than crowding into cities. "The telecommunications revolution means that we can go back slowly to living in communities that are more congenial," he says.

He is less optimistic about the way our social attitudes towards work are moving; our social and economic framework is preferable to the Japanese, but perhaps it is moving too far away from reality. "We have forgotten the importance of hard work and the need to please the customer," he says.

Here his political views start to come out. He dismisses Inmos as "a ground nuts scheme," a "figment of the Socialist imagination that nobody takes seriously." He is adamant that the UK must manufacture chips, not surprisingly since his firm has been doing so for years, but he is convinced that its head start will win the day and Inmos will "quietly die." "It's the job of politicians to organise the market and leave manufacturing to free (and state) enterprise," he says. As a politician, de Ferranti has done plenty of organising of the market, and it is now up to his fellow businessmen to prove he is right.

*In Europe by Basil de Ferranti [illegible]

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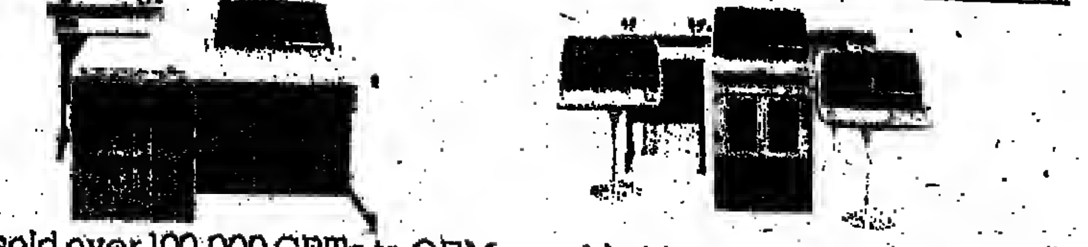

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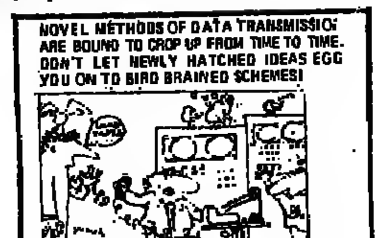
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INTERNATIONAL BRIEFING

US electronic mail conflict

CONFLICT is growing between the US Postal Service and the Federal Communications Commission over proposed new forms of electronic mail. For electronic message services that produce hard copy for delivery by hand, the Postal Service wants to assert its monopoly over such delivery, but the FCC is now claiming authority over this.

The FCC has also rejected proposed rates put forward by Western Union for operating a joint "electronic computer-originated mail" service with the Postal Service. This would entail high-volume users linking their computers via the Western Union network to printers at selected Post Offices, from which the output would be delivered by hand.

Weather network

FURTHER consolidating its dominance of the world market for computers in weather forecasting, Control Data has installed a Cyber 171 medium-scale mainframe at the Zentralanstalt für Meteorologie und Geodynamik in Vienna. The system is valued at $1.5 million and will be used for volume processing of weather statistics and climatological data.

Banking on Olivetti

COMMONWEALTH Banking Corp of Sydney is to buy 250 Olivetti TC 800 programmable terminal systems and 11 SP 600 concentrators to enhance its distributed data processing network.

Criterion switch

WITH a switch from its NCR Century to a NCR Criterion N-8560, the Upper Austrian Regional Mortgage Bank, the Ober-Osterreichische Landes-Hypothekenbank, is hoping to extend its services to customers by converting some transactions to online operations as well as meeting the demands of increased business. The Criterion is said to be the largest NCR machine operating in Austria to date.

ICL X25 interface

ANNOUNCED in France over a year ago (CW, January 26, 1978), the ICL interface for X25 networks such as the French Transpac will be available late this year. It will be on an additional board in the 7502 terminal controller, and will also be usable with the UK's Packet-Switched Service, due next year.

Monitoring Airbus engines

THE Electronics Corporation of India, ECIL, TDC-316 minicomputer shown here under test at the company's Hyderabad factory, is to be used in the monitoring of the General Electric engines on the Airbuses in use with the internal carrier Indian Airlines.

The European-built A-300B Airbuses have proved very popular and successful with the airline, a vastly profitable operation which flies with an enviable load factor of about 90%.

The GE engines will be monitored in flight for early signs of hot spots and wear, and the data recorded on magnetic tape. The data will be processed on the TDC-316 on the ground, the idea being to identify parts which will require replacement at a very early stage of wear, thus reducing the frequency with which routine maintenance has to be carried out.

The TDC-316 is a 16-bit mini similar to the Digital Equipment PDP-11, with a maximum 32K words of directly addressable memory; memory mapping enables this to be expanded to 128K words.

IBM-compatible minis for the European market

IBM software is all that is needed to make use of two families of IBM-compatible minicomputers that will be introduced to the European marketplace over the next year. They are built by two US firms, Two Pi of Santa Clara, California, and Nanodata of Buffalo in New York State.

Two Pi intends to start marketing in Europe this year, and a spokesman for the company told Computer Weekly that a European sales manager would probably be hired in the next two months.

Two Pi's machine, the V32, is a 32-bit bus structured minicomputer which executes the IBM 370 instruction set by microcode.

Two Pi sells the V32 entirely on an OEM basis in the US to firms that sell hardware/software packages to end users. One of these firms is National CSS, the big timesharing bureau which now has a separate division devoted to selling the 3200, a system based on the V32.

National CSS stated its interest in selling the 3200 on this side of the Atlantic about a year ago (CW, April 27, 1978) and now has the firm intention of setting up a marketing company later this year. NCSS already has a European Subsidiary, CSS International, selling its time sharing services, but as in the US it will probably set up a separate company to sell the 3200.

The main software ingredient of the 3200 provided by NCSS is the VPS operating system. VPS is a derivative of VP/CSSV, the powerful system which NCSS developed for the big IBM mainframes that run its time sharing service.

The V32 is based on the ubiquitous AMD 2900 chip set family from Advanced Micro Devices which is second-sourced by firms that include Signetics, a subsidiary of North American Philips, the company which also owns Two Pi.

Philips has already stated that it does not want to sell the V32 in Europe.

Nanodata aims to start selling its VMX family of IBM 370-compatible minicomputers in Europe early next year. The two initial VMX systems, the VMX-200 and VMX-400, are said to offer performance characteristics that exceed those of the 370/138 and 370/148, respectively.

Nanodata intends to open an office in London later this year but will start by marketing its more established QM-1, a highly flexible microprogrammed machine that can emulate a wide range of computer architectures.

QM-1 is intended mainly for use as a computer science teaching tool and by high technology users.

ICL spreads software development

ICL is planning to make more use of external software contractors and is considering the development of some software outside the UK.

Peter Hall, ICL director of communications, said last week that the company was holding talks with the UK Computing Services Association on the ways in which its members could become more involved in developing software for the 2900 series.

Hall was also on the EEC delegation to India (CW, April 19) and said there was a strong possibility that some software work might be sub-contracted to Indian software companies.

The increasing stability of the 2900 series operating systems, he said, meant that it was possible for the first time to have stable and clearly defined interfaces to which external contractors could work.

Although a project to develop software by ICL Australia a few years ago did not prove successful, ICL was considering the spread of software research and development outside the UK, said Hall.

The TP software for the 2900 (CW, April 19) contained software from a variety of sources including Dataskil, ICL Sweden and outside companies.

Australian outlook

A TEACHING network consisting of five minis and a mainframe, capable of supporting over 90 terminals, is being installed by Honeywell at the New South Wales Institute of Technology. Users will be connected to either one of the Level 6 minis or the Level 66/20.

CDC signs Nigerian agreement

AN agreement has been concluded between Control Data Corp and the Leventis Group of Lagos, covering the distribution of CDC computers in the Federal Republic of Nigeria. The move represents a change of policy of CDC, which already has a wholly-owned subsidiary there.

This company, Control Data Nigeria Ltd, was established in 1975, when the prospects of future business seemed very good, and negotiations were in hand for the sale of four large computer systems, in addition to one already installed (CW, July 3, 1975).

The expected business never materialised, however, and the company now has only one university installation in Nigeria.

This has led to the decision to employ a local distributor. The Leventis Group is a large organisation employing over 10,000.

Under the agreement, Leventis Technical Ltd, a member of the group, will be responsible for marketing, support and maintenance of Cyber 170 systems, related software and peripherals. The agreement will be administered by Control Data Ltd in the UK.

Micros from Israel

TWO microprocessor-based devices, aimed at different sectors, have been introduced by Israeli companies.

The first is a telephone management system called the RMS-2, produced by Telrad of Lod. It can log calls on up to 180 telephone lines and provide detailed printout of traffic on a real time or batch basis.

The second development is also from a Lod company, Israel Aircraft Industries. This is an airborne warning system that uses input from flight control instruments to assess the risk factor involved in low flying and helicopter operations.

Simulation techniques in US nuclear disaster inquiry

COMPUTER simulation techniques are to be used in an attempt to discover what caused the disaster at the Three Mile Island nuclear power station in Pennsylvania.

The immediate cause of the accident was overheating, following a stoppage in the water flow to the reactor core. The reactor should have shut down immediately but failed to do so, and it is to establish the reason for this that a simulation is to be run.

The exercise will be at Idaho National Engineering Laboratory, using a package it designed called Relap, mounted on CDC 7600 and Cyber 173 hardware.

Relap accepts as input a basic description of a nuclear reactor, and then calculates how it will respond to changes in a number of different parameters.

Euro Space Agency orders minis from CTL

ESA, the European Space Agency, has ordered two minicomputer systems from Computer Technology Ltd of the UK, for checking out satellites.

The two systems will be supplied with a special real time operating system called MINI-E4 for operational use as well as with CTL's general purpose operating system, Modus, which will be used for interactive program development.

The two CTL systems will be ruggedised so that they can be relocated [illegible] sites all over the world. [illegible] will be used within the European Communications Satellite [illegible], while the other will test the faint object camera which is part of the NASA-ESA space telescope project.

ESA already uses CTL systems on other satellite projects and transported systems to Cape Kennedy for the launches of the Meteosat and Geos II satellites.

The two new CTL systems will each include a 176K byte main memory, a 9.6 Megabytes cartridge disc drive and a high speed CAMAC controller with a data rate of up to 12 million bits per second. They will be delivered to ESA this autumn. The contract is worth £367,000 to CTL.

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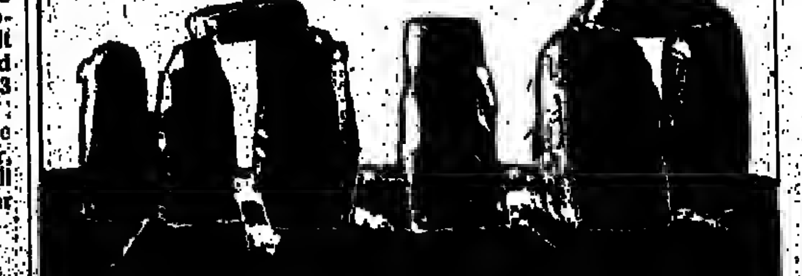
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Britain's last remaining Oriental Crown colony, Hong Kong, now has some 700 computers installed; and the industry, led by IBM and ICL, employs some 2,400 staff. Here we take a look at how the small colony, tightly crammed with a population of some four and a half million people, has benefited from its close associations with the UK. But another reason for this success story is the quality of the workforce. A former manager of the Hong Kong Government's DP division describes the Chinese as "the best programmers in the world".

How Hong Kong grew into one of world's leading computer using countries

Girls at work in the Hong Kong and Shanghai Bank's Group Data Entry Department, which handles the bank's Autopay system. The average number of strokes per hour is over 16,000, with the top girl making over 24,000. The bank's current accounts system is claimed to be the largest online real time system in the world.

ASKED to list the most advanced computer using countries in the world, few would think of Hong Kong. Yet this sole remaining Oriental Crown colony has developed rapidly since the installation of its first computer in 1964 and can now, in terms both of computer usage and complexity of applications, stand favourable comparison with the most pioneering European countries.

There are about 700 computers currently installed in Hong Kong. An active computer industry has grown up, led by IBM and ICL and employing some 2,400 staff. On the technical side, there is a flourishing local computer society which produces its own monthly publication.

The rapid advance over the past 15 years has been made possible by the small population of four and a half million people, by the colony's exposure to Western business methods by virtue of its close association with the UK, and by the expansion of the economy over that period. Another reason given by local Western observers is the high quality of the Hong Kong computer staff.

For example, Lee Tste, a former manager of the Hong Kong Government's data processing division, says bluntly that the Chinese are the best programmers in the world.

His opinion is endorsed by Richard Willsteed, data processing manager of John Swire and Sons (HK) Ltd, who gives high marks to the local staff for their abilities in developing systems, the power of their logical thought, and their application to the work in hand.

Willsteed values their qualities so highly that he recommends systems houses in other countries to consider establishing operations in Hong Kong.

The government only set up its own data processing division six years ago, but has moved fast since then and now has a very wide range of applications.

Among them are two which might well cause considerable apprehension to dilatory tax-payers and errant motorists.

Automation of the yearly tax demand notices meant that the poor citizen had to pay up four months earlier.

While for the motorist, every time he renews his licence the computer checks to see whether there are any outstanding court orders for fines before it issues the licence. To make life even harder, this system will in the future be linked to an online vehicle registration system. Provided that all fines have been paid a new licence is issued instantly.

Other systems concerned with the prevention and detection of wrong-doing include one for checking passenger movements in and out of the colony, and another to help the housing department detect any illegal multiple tenancies in government subsidised housing, in which live nearly half the population. The operation of the police radio system is also controlled by computer.

The government has developed a number of systems to improve the quality of public services. In this category come systems for weather forecasting, for road traffic and public transport planning and control, for hydrological surveying, and for airport services such as baggage handling and flight information display at Kai Tak International airport. There is also a system being planned to help speed up the queues at public libraries.

A passenger checks in his baggage and selects his seat at Hong Kong's International Airport. The computer will print out his seat ticket and record all particulars — including weight of his baggage — on the load sheet. Computers are also used at the airport to operate the automatic flight information boards, in the provision of secondary radar surveillance, and the preparation of charts, route maps and climatological data for aircraft.

The government is currently spending around £6 million a year on computer systems. About a quarter of this goes to ICL, which makes the government one of ICL's biggest customers anywhere. Recent orders include one for a dual 2970 system to replace the 1904S and 1903T machines used for licensing and tax systems and also for criminal record indexing. Another is for a 2960, due to replace a 1902A used by the Treasury.

To move into the private sector, the banks are as advanced in computer usage as their European counterparts. The colony's 70 banks have about 800 branches altogether, and about half of them are equipped with real time terminals. When the Bank of China has completed its automation programme the proportion will rise to over 75%. Cash dispensers have also been introduced.

Other banking applications include systems for deposit and loan accounting, foreign exchange and automatic payments, as well as internal bank accounting.

As in the West, the growth of computerised operations has been accompanied by substantial increases in the volume of business. Over the past seven years, the number of banking transactions has increased by an average of 20%.

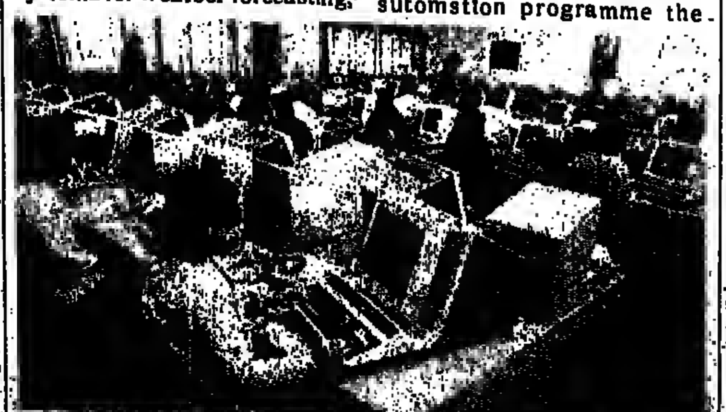
One bank, the Hong Kong and Shanghai Banking Corporation, is among the three biggest computer users in the colony, along with the government and John Swire & Sons (HK) Ltd, which specialises in airline computer systems. Swire developed an airline passenger seat reservation system in the early seventies for Cathay Pacific Airways, and has since sold the system to a number of other airlines.

Swire's system development section, numbering 80 out of the company's 150 computer staff, is the biggest in Hong Kong. Among the 150 systems it has produced are an aircraft engineering and maintenance system, to handle the stock control of 200 million spare parts. Another major system was produced for air cargo terminal control.

Another big user is the Hong Kong telephone company, which has had a computerised directory inquiries system for three years now.

A pioneering application under development is a viewdata service, using the system developed by the British Post Office (CW, May 25, 1978).

Unlike the UK system, however, it is expected to be used primarily by the business community.



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Hawaii is set to become Pacific telecomms clearing house

At the beginning of this year, people from all over the Pacific met at a series of conferences at Hawaii University to discuss telecommunications and to plan for the future. Reports suggest that Hawaii, because of its geographical position, could have immense strategic value as an international telecomms clearing house.

IT was possible to gain a real insight into the progress in telecommunications being made in the Pacific area, when in January 315 people from 18 countries and 23 US states gathered together at Hawaii University for a series of meetings.

The largest of these was the 1979 Pacific Telecommunications Conference, PTC 79, which convened 19 workshops over two days to cover topics ranging from economics, electronics and statistics to policy, planning and privacy.

A few days earlier, the twelfth annual Hawaii International Conference on Systems Sciences, HICSS, discussed the application of computer technology to medical information processing. HICSS is a forum for professionals in the information, electronic and decision sciences.

And then following PTC 79, users of NASA's first and latest applied technology satellites discussed their activities. Peacesat terminal operators from Canada, Alaska, New Zealand, the Cook Islands and Hawaii met face to face.

Also, about 45 delegates got together to plan the next Pacific Telecommunications Conference, scheduled for January 7-9, 1980, and to consider the creation of a permanent organisation.

Such a body, according to PTC 79 co-chairman Richard Barber, from Hawaii University, would provide "an open, non-political channel for exchange of information and views among carriers, suppliers, users, governments, professional groups and others in the Pacific area."

PTC 79 was distinguished by the wide range of intriguing subjects under discussion. Conference proceedings were published before, rather than after, the papers were presented, giving delegates the opportunity to preview workshop session materials before participating.

Several reports concerned developments in computing. For example, the point was made that worldwide public data networks are a distinct possibility now that international technical standards for transmitting data over digital circuits have been formulated.

Dr Horoshe Inose of Tokyo University observed that, by using X25 and other interfacing protocols, customers can virtually dial up a computer as they would a telephone.

The ability of digital networks to transmit facsimile images of letters, drawings and photographs at a speed and with the quality of xerographic reproduction was also discussed.

Some Hawaiian corporations already subscribe to private channels for intra-company communication, but development of public networks has been hampered by opposition from the US Postal Service, which wants to offer it first.

In Alaska, an electronic mail experiment is being installed now, in 60 locations, for the Department of Education. Telephone-like connections are switched by computers to ensure delivery to the correct address.

A pilot project now linking computers at two Hong Kong universities was reported by Jerome Day of the Computer Services Centre there.

Restricted by regulatory laws from using public telephone lines for data, the universities have had to lease private circuits, restricting them to the minimum needed to support the nodes which buffer the data flows.

Remote terminals are connected to these nodes rather than direct to the mainframes. This low cost network is unique in developing countries and serves as a model for increasing computer power without massive expenditure.

Word processing computers were discussed with particular reference to their use by newspapers for editing and storing articles.

In Japan, a modified Telex terminal has been demonstrated by Kasunori Konishi, which can edit copy almost as well as a word processor, but can also send completed text out as a standard Telex message.

Private branch telephone exchanges are increasingly being installed for digital only transmission.

The British Post Office is test marketing its Prestel system in the region. Canada has expressed interest in plugging in to Prestel, and Australia will decide this year whether to join or to create its own.

In Japan a similar system called Captain is just now being made available.

A domestic computer industry arose in India in 1975 after IBM began an enforced run-down of its operations. This has made the country self-reliant in many areas of electronics, including medical systems, telephone exchange mechanisms and military data processing.

The Satellite Instructional Television Experiment, Site, in 1975 and 1976 opened a domestic market for rural community television sets and an outlet for film and television programme productions.

According to Dr Meheroo Jussawalla of the East-West Centre: "The experience of India may help the World Bank to shift its emphasis in its lending policies from a strict monetary rate of return to an assessment of indirect social and structural benefits."

Other topics discussed were of interest as illustrations of the advanced telecommunications projects being undertaken in the region.

For example, in the islands of American Samoa, medical programmes on television have contributed to the fight against diseases, and in-school materials have improved literacy, according to former governor Rex Lee.

In Indonesia, a wholly owned satellite called Palapa is used to relay local telephone calls, television programmes, data from the national oil, mineral and timber industries, and military communications.

In combination with the nation's terrestrial microwave and telephone links, 60% of the population now has television reception, while major expansions of telephone exchanges and telex networks are being installed across the archipelago, under the direction of Dr Ing Suwarso of Pansystems.

US satellite activity was one of the most important topics discussed. After 13 years in space, NASA's first applied technology satellite is still working.

Designed to last only half that time, ATS-1 has been given over entirely to public service users, with a clear promise to leave it in place until it fails.

Stuart Kingan, of the Cook Islands government, said: "ATS-1 has done more for the Pacific than Site did for India using the more expensive ATS-6."

NASA's big ATS-6 satellite has now been re-positioned over the Pacific for US experiments. The potential for Micronesia telecommunication projects over ATS-6 led Christopher Plant, of Simon Fraser University, Canada, to ask if "telecommunications are being used to further the dependency of that region on the US."

In Hawaii, Honolulu's three major commercial television stations pooled their resources and built a satellite earth station antenna at Palehua in the Waianae mountains.

For teleconferencing, Hawaii's position in mid-ocean is a big advantage. Already one multinational corporation has opened an office there.

In the same way, Hawaii could become a clearing-house for international telecommunications development, and the signs are that this is happening.

PTC 79 co-chairman Richard Barber has been persuaded to head a working committee for exploring ways to sustain the momentum generated by the conference. His office is in the Social Science Research Institute at Hawaii University.

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MARKETVIEW

BY FRED LAMOND

Nearly three months have passed since IBM startled the industry with the fourfold improvement in the performance/cost ratio of its new 4300 series. Since then, every competing processor manufacturer except ICL and Univac has announced new processor models offering equivalent ratios. In this Marketview, Fred Lamond analyses the immediate and long-term impact of the new IBM low price strategy on the market shares and profitability of leasing companies, plug-compatible peripherals and processor manufacturers, other manufacturers and software suppliers.

How IBM's lower price strategy impacts its competitors

THE IBM 4300 series announcement, and the fourfold increase in IBM performance/cost ratios, have been an inmitigated catastrophe for the third-party leasing companies with IBM systems on operational leases which do not cover the equipment's full amortisation period.

It is just as bad for the Lloyd's syndicate that was unwise enough to insure the residual values of these leasing companies' portfolios of IBM 360 and 370 configurations.

When 360 or 370 leases end, or reach the earliest date at which the lessor can exercise a cancellation clause, the terms on which the leasing company will be able to renew the lease will be determined by the price at which IBM offers systems of equivalent power from the 4300 series.

Thus, since the current UK price for a 2M byte 4341 has been published at £158,675, the residual value of a 370/145 or 148 with 2M bytes of main memory can be no more than £100,000, since it offers only 58% of the 4341's throughput.

It may even be less, since a 370/145 or 148 consumes 50% more electric power than a 4341, and IBM's maintenance engineering charges for it will also be higher.

Yet 370/148s may have been acquired as recently as last year by leasing companies at the then current IBM list prices of £400,000 to £600,000, and 370/145 as late as 1975 or early 1976 at prices within the £400,000 to £1 million range.

Any new leases for 370/145s or 148s will only be able to recover some 25% of the current residual value per year, which means no more than 5% or 6% of the price which the leasing company originally paid.

The situation is the same for 370/138s. Acquired within the last two years for between £200,000 and £300,000, they now have a residual of only £48,470 to £80,000, the prices of 512K and 1M byte 4331 processors of equivalent power, and the residual values of 115s and 125s may be impacted even more, since IBM Data Processing Division no longer offers systems of that power, and DOS/VSE System IPO/Es will not be available for configurations of less than 512K bytes.

Leased 370 configurations do not, of course, include only processors. But the residual value of 3330, 3340 and 3350 or compatible disc drives attached to them will also have been depreciated, though to a lesser extent, by IBM's current prices for the larger capacity new 3370 fixed disc drive. Only the residual value of the magnetic tape drives and serial I/O remains relatively unaffected.

Even such residual values that have been indicated for 370/135 to 148 systems assume that the leasing companies will equip them with enough plug compatible memory, disc drives and other peripherals to make each configuration truly equivalent to the 4331 or 4341 that IBM might be proposing. That is, up to 2M-4M bytes of main memory on 370/145 and 148s, against an IBM 2M byte maximum; up to 1M bytes on 370/135 as well as 370/138 processors, and up to 18,240M bytes of backing disc storage capacity per 370/145 and 148 block multiplexer channel, as on the 4341.

But it is by no means clear whether IBM will be prepared to take plug compatible memory and peripherals into account in the System IPO/Es that it generates for used 370 configurations. It will certainly not generate them for any memory or peripheral capacity beyond the limits that it has specified itself for that model.

If IBM declines to generate System IPO/Es — and therefore provide customer centre support — for such mixed supplier configurations, the leasing companies and their plug compatible memory and peripherals suppliers will have to find software houses to write equivalent System IPO/E generators, and service bureaux to provide the equivalent of IBM customer centre support.

This will drive up the complexity, and thereby the overheads, of their marketing and customer support operations at the very time when revenues from their portfolios of 370 configurations will have been cut to the bone.

If IBM support policy for used 370 processing systems equipped with PCM memory and peripherals is still obscure, it is crystal clear as far as the compatible processing systems from Itel and Magnuson (and, in the US, Control Data) are concerned.

IBM will license them to use individual DOS/VSE and VM/370 SCPs and program products on the same terms per site as IBM 370 and 4300 users, but will not provide either the manufacturers or their users with the packaged and pregenerated System IPO/Es.

These are regarded as an aspect of support, which the compatible processor manufacturers have to provide themselves for their users.

Both Itel and Magnuson will thus have to provide their own customer centres to support their AS and M80 series, at which to generate the equivalent of System IPO/Es. Or else they will have to make arrangements with a large software and service bureau organisation to provide such support for them.

This is, however, the least of the problems facing the IBM compatible processor manufacturers. Their whole sales strategy has been based on gaining customers at IBM's expense by offering them more cost-effective hardware than they could obtain from IBM itself.

In 1978, the Magnuson M80/3 and M80/4 and the Control Data Omega 480 I and II offered twice the throughput of the 370/138 and 148 at equivalent or lower prices, while Itel's AS/3 and AS/4-3 offered a comparable advantage over the 370/148.

The new 4300 series offers a four-fold improvement over 370/138 and 148 performance-cost ratio. The new models announced since then by the three medium size IBM-compatible processor suppliers show them quite unable to match IBM's current low production costs and, thus, end user prices (Table 1).

None of the three suppliers can offer a compatible system within the IBM 4331 price range, and Itel cannot even do so at prices comparable to the IBM 4341. The new Magnuson and Control Data models are offered at prices comparable to the IBM 4341 but, as Table 1 shows, offer not quite as good a performance-cost ratio.

Instead, the new Itel, Magnuson and Control Data models compete with the IBM 4341 mainly by offering an earlier delivery, greater on-site expandability, and a wider choice of IBM operating systems, including MVS and MVS/SE to those interested.

Earlier Itel and Magnuson deliveries mean that current IBM 370/125, 135 or 145 users on short term MAC rental contracts, or whose two-year MLC contract is about to expire, will be able to obtain a two-fold increase in their performance-cost ratio.

The greater on-site memory expandability of the Itel and Magnuson systems means that prospective users will not restrict their future growth possibilities if they purchase a system or sign a long five- or seven-year lease for it. In which case the lease terms quoted by Itel may appear much more competitive with IBM's two-year MLC lease rates than a comparison between their processor purchase prices would indicate.

Finally, support for MVS and MVS/SE allows the Itel AS/3-5 and Magnuson M80/43 to compete also — this time with a better performance-cost ratio — against the IBM 3031 for the business of large users already running one or more large systems under MVS or MVS/SE and requiring fully compatible satellite systems at additional sites.

This sales strategy can only succeed in the short-term, however, while the initial flood of orders keeps IBM 4341 deliveries within the 18-month to 2-year range, and subject to ballots. By the end of 1980, IBM should have caught up with most of its production backlog and be able to quote 12-month deliveries or less. By then, the IBM compatible processor suppliers will have to have brought their end user prices well below IBM's at comparable performance to be able to remain in business.

And it is precisely FUD (Fear, Uncertainty and Doubt) about their ability to do so that will dissuade many potential customers from taking advantage of the real benefits that they have to offer in the short term.

The problems that the IBM 4300 series presents to the other leading general purpose DP system manufacturers, ie Honeywell, CII-HB, ICL, Burroughs, NCR, Siemens, CDC and Univac are of a different order.

With substantial customer bases of their own (most of them produce on a volume scale that does not make it too difficult for them to match IBM's 4300 performance-cost ratios, even if their margins over direct production costs are then lower than IBM's.

Indeed, several of them were already competing before the IBM 4300 announcement with a single processor design against the 370/115, 125 and 138, which meant producing a processor of potentially the power of a 370/138 and selling it at 370/115 [illegible] prices in entry-level configurations. This was [illegible]

● Turn to page 23

● From page 22

with CII-Honeywell Bull's Series Level 64 and the Univac 90/25, 90/30 and 90/40.

Their main problem lies in avoiding a loss of revenue from their existing customer base. Having until now competed against IBM for entry-level customers on the basis of lower prices for configurations of equivalent power to do the bread-and-butter accounting tasks, they have a self-selected customer base that is far more economy-minded than IBM customers normally are.

Honeywell, CII-Honeywell Bull, Burroughs and NCR have announced their responses to the 4300 series, while Siemens achieved the rare coup of announcing its response to the IBM System 38 and 4331 (the Siemens 7.708 and 7.718) as far back as May, 1978, a full five and eight months respectively before the announcement of the IBM systems against which they are designed to compete.

Apart from the Siemens 7.708 and the more recently announced 7.706, whose basic system prices are substantially lower than the previous entry level model to the Siemens 7.000 series, the other mainframe manufacturers' announcements form a consistent pattern (Table 2). The new models that they have announced since February remain essentially within the same price range as the compatible older medium size models that they replace. Apart from the Burroughs B 2930 and B 3950, they also use essentially the same processor hardware, but with more compact and cheaper 16K bit MOS memory instead of the earlier 4K bit memories that they used.

What the new models do is to offer at these same prices more processor power and substantially more main memory than the older models. CII-Honeywell Bull's new entry-level 64/DPS-2, for instance, offers 512K bytes main memory and processing power equivalent to the old 64/40 at the former price of a 64K 64/20. The top 64/DPS-6 model offers 17% more processor power than the former top 64/80, and is expandable to 2M bytes of main memory against a previous 64/00 maximum of 768K bytes.

To encourage their users to take the improved performance-cost ratio in the form of greater power rather than lower prices, CII-Honeywell Bull and (in the UK) Honeywell Information Systems are offering to upgrade without charge existing Level 64 rental customers to processor performances and memory capacities equivalent to those available on the new 64/DPS range at the same rentals.

Purchasers can obtain the same service for a moderate fee. Both can get this done within three months. Those users, on the other hand, who insist on getting the cheapest new system that will do their current work, and thus cut their current rental commitments, will have to take their chance in the delivery queue for a new processor.

By offering to upgrade existing Level 64 users immediately to 64/DPS-equivalent specifications, CII-HB and HIS are also reassuring them that they made the right choice. They can get the new improved performance-cost ratio immediately without exchanging processors, whereas IBM users have to wait for a year or two before enjoying the new higher performance-cost ratio on a new 4331 or 4341 system.

This is a demonstration that other mainframe manufacturers will also have to make to their users. Because, with the exception of NCR in the US, the new models that they have announced since [illegible] equalise their performance-cost ratio with the 4300 series, they do not improve on it.

And since the IBM sales force remains the most dynamic and efficient in the whole industry, and the library of applications software written worldwide for 370 and compatible systems is greater than for any other computer series, other mainframe manufacturers will have their work cut out to defend their customer bases against IBM raids, let alone enlarge them further at IBM's expense.

IBM's enhancement of DOS/VS into the much more powerful and versatile DOS/VSE has also deprived both Siemens and Univac of their main sales arguments for converting IBM DOS/VS users to their own 7.000 series and Series 90.

Even the minicomputer manufacturers are beginning to feel the draught. Having consistently lowered their hardware prices in line with technological prices, DEC, Data General and other minicomputers are already performance-cost competitive with the 4300 series, but do not improve on it. Unless they can cut their prices further to restore a competitive advantage over IBM, they or their agents will have to beef up their software and customer support to bring it up to IBM levels.

They may find this difficult, because they have hitherto relied heavily on independent systems and software houses to provide such customer support as well as applications software packages for their packaged business minicomputer configurations.

They now find both IBM General Systems and Data Processing Divisions making interesting proposals of cooperation to these same software houses: GSD for its Series 1 and, to a lesser extent, Systems 34 and 38; DPD for its 4331.

Both are offering independent software houses the fullest cooperation to develop user industry-specific "applications machines" that could then be sold either under the software house's or IBM label.

There is one section of the industry, however, for whom the announcement of the 4300 series has brought nothing but unadulterated joy — the independent software houses and, to a lesser extent, the remote access service bureaux. Both will enjoy a sharp increase in demand for their services, and an easier task to sell them. The sharp cut in 4300 series and competing mainframe hardware prices for given power and memory capacity means that users will have a larger proportion of their budgets to spend on applications software.

Far from their having to compete against IBM for the IBM user's software budget, IBM's Data Processing Division is now extending to them the same hand of friendship that General Systems Division first reached to them two years ago. They can get guidance from DPD about applications areas that IBM is leaving free for them to exploit.

If they write particularly attractive software suitable for an "applications machine," IBM may offer to market it for them and split the profits on it. And they can also be put on the local DPD sales manager's short list of software houses ready to sign turnkey programming contracts with IBM users.

IBM's complete unbundling of systems software means that those software houses with more powerful and/or efficient operating systems or systems enhancements, sort/merge generators, TP monitors, and database management systems will find it much easier to sell their products to IBM users now that they no longer have to comp[illegible] against "free" IBM systems.

Cincom, Cullinane and Software AG particularly should have a field day with their database management systems.

Software houses with skills in writing systems software will also be much in demand from third-party leasing companies, brokers and plug-compatible peripherals and processor manufacturers to write and maintain the equivalent of IBM System IPO/Es for them and their users, to consolidate and pregenerate whatever mix of IBM and independent systems software products any of these suppliers requires for his users.

Remote access service bureaux will benefit from the need of software houses and their leasing company and compatible processor manufacturing clients for computer centres at which to pregenerate and maintain systems software packages equivalent to System IPO/Es, and to provide all the services to leasing company and compatible processor manufacturer users that IBM's DPD will provide for its users at its customer centres from the end of this year.

Manufacturer	IBM		Magnuson			Itel
Processor model	4331	4341	M80/32	M80/42	M80/43	AS/3-5
Relative processor performance rating (Computerworld figures)	10.0	37.4	62	41	48	47
US domestic price ($)	75,000	250,000	241,000	356,000	410,000	600,000
UK price (£) (Estimate in brackets)	48,470	158,675	(121,000)	(174,000)	(20V,000)	(300,000)
Main memory capacity: included in basic price	512 K	2 M	1 M	2 M	2 M	2 M
maximum expandable on site	1 M	4 M	16 M	16 M	15 M	6 M
Input-output channels: included in basic price	1	3	3	3	0	5
maximum	4+2	6	16	16	16	0
IBM operating systems supported: DOS/VSE	Yes	Yes	Yes	Yes	Yes	Yes
VM/370	Yes	Yes	Yes	Yes	Yes	Yes
OS/VS 1	No	Yes	Yes	Yes	Yes	Yes
MVS and MVS/SE	No	No	2M up	Yes	Yes	Yes
First customer deliveries: quarter/year	2/79	1/80	2/79	2/76	2/79	2/79

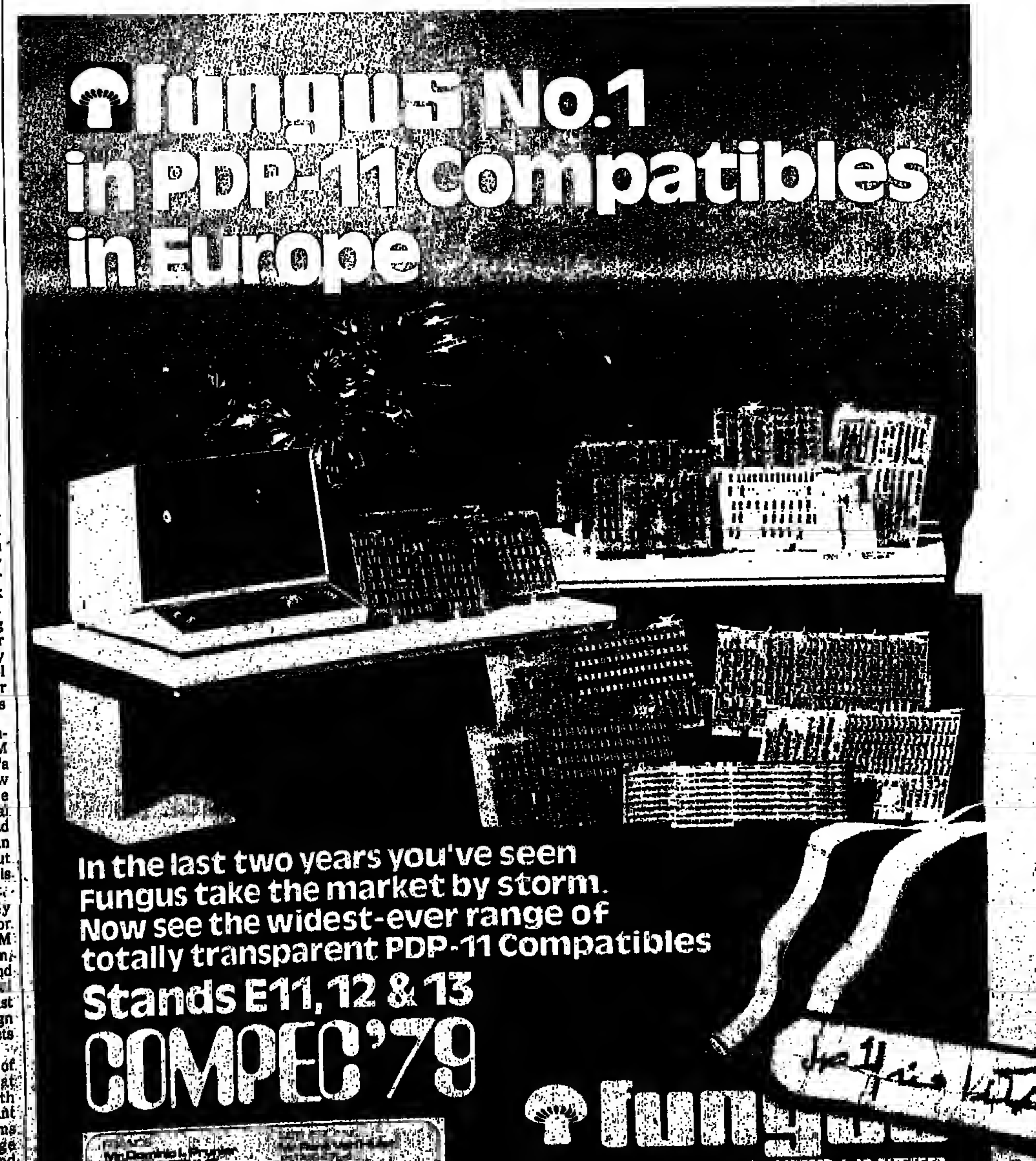
Table 1. IBM 4300 and Compatible Processor Specifications and Prices

Notes: Estimated UK prices. Both Intel and Magnuson quote prices in dollars and convert them to UK £ at the day rate on the day of signature of the contract or the day of payment.

Manufacturer	IBM	Honeywell and CII-Honeywell Bull	Burroughs	NCR	Siemens
Price levels related to former 370 models					
370/115	4361	64/DPS-2	—	V-8555M	7.716[1]
/125	—	64/DPS-4	B 2930	V-8565M	—
		64/DPS-6	—		
/138	4341	66/DPS-44[2]	B 6950	V-857M	—
/148	—	66/DPS-52	—	V-858M	—

Table 2. New General Purpose Computer System Models Announced in 1979

Notes: 1 Announced in May 1978, and competing also against IBM System 30 Model 5.
2 Called 66/DPS-05 by CII-HB and its Continental subsidiary companies. All the Honeywell models are field upgradable from smaller to larger models



How the Chinese bought a Micronova

IN the dark ages of 1977, before the US realised that the Chinese were its friends, scientists from the world's most populous nation had difficulty buying microcomputers and other large scale integrated circuits.

Notwithstanding the international tensions, some Chinese lived in New York, working at the United Nations and generally learning o bit about the US. One thing they noticed was the nvnilability of high technology items in nearby retail stores, among them Computer Store, a few blocks from the UN complex on 39th Street, ond Computer Mart, several blocks south on 30th Street.

Oriental wisdom knows few bounds, and the curiosity of scientists back home in Peking was not less than an adolescent's interest in the opposite sex. So the Chinese from the UN went out one autumn day to see the circuits they were told they could not buy.

Coincidentally, Computer Store was having a big sale as it closed down its component sales department to focus on small business computers. In went the Chinese and, minutes later, out they came, pockets empty of cash but filled with integrated circuits. Unfortunutely, Computer Store was out of Micronova chips, so the Chinese had to order one.

The Chinese are not bad businessmen. When paying for their forbidden ICs, they produced diplomatic identification. Thia enabled them to avoid being taxed the 8 par cent that all Americans must pay for such purchases in New York City.

A similar visit to Computer Mart netted another load of high technology. It is also believed, but yet unproven, that Radio Shack provided the Chinesa with still another batch of parts.

Some time shortly after the Chinese shopping spree, the US government got wlae to the Oriental interest in chips and the FBI sent its agents to visit the electronica storea. Once at the scene of the activity, the FBI ogents were greeted with courtesy by the storekeepers and were allowed to examine the records of the Chinese purchases.

AMERICAN SCENE

BY HESH WIENER AND CAMERON DAVIS

Joining the war on terrorism

THE microcomputer haa joined in the worldwide battle againat terrorism. A company called Riaks International, of Alexandria, Virginia, is using its Radio Shack TRS-80 to store and analyse data on the hundreds of terrorist incidents that have occurred since 1970.

Bombings, kidnappinga, maimings and other acts of terroriam in every country have been catalogued in the computer's files, which Risks says are the most complete in private honds anywhere. The data is stored on tape cassettea.

Risks International went into business last August to provide up-to-the-minute information for a roster of private clients. These clients are, for the most part, buaineasea concerned about the safaty of their employaes.

The youth of the company and its modern approach to business contraat with the people who make up the firm. All its key peraonnel, according to Risks, have more than 20 years' experience in counter-terrorism invaatigationa. The most important of the company'a experts is Dr Charles A. Russell.

Ruasell oversees the system that Risks uaes to give its clients the lateat trends in terrorist aetivity. In January, for example, Russell's micro helped show that women were increasingly involved.

RUSSELL . . . his micro shows that women are increasingly involved.

According to the data produced by Risks' computer, women took part in 22.5% of terrorist assassinations during 1978. This is a sharp rise from the 12% they represented in 1977.

Women have also helped in kidnappings in Europe, Latin Amerles and the Middle East, according to Risks.

Women, according to Risks, are particularly active in "kneecapping", the shooting of various persons in the legs that has become a hullmark of Italian terrorist groups. In 1976, 35% of all maimings involved female terrorists, and the figure grew to 41.6% by 1978.

Business executives have become the prime targets of terrorism against individuals. A study of 370 kidnuppings done by Risks showed that in 54% the victims were businessmen.

Other reports provided by Risks' experts catalogue the rapid rise of terrorism in recent years. There are signs that 1977 was a peak yenr, hut the curve, which rose from 206 incidents in 1972 tn 1250 in 1977, mny turn upward again.

Strange behaviour on Wall Street

STOCK market analysts don't seem to know which way things will turn. Leading economic indicators have pointed downward for a few months, but they have done so inconsistently.

Interest rates, which had shown some signs of peaking, may in fact be on the rise again as government policy makes money more scarce. House building and car sales, often good indicators of the strength of the economy, have been better than expected. But there is a growing belief among business analysts specialising in these fields that the downturn will arrive later and mors sharply than was earlier predicted.

Stock prices, long overdue for a sustained rally, have behaved strangely, moving up and down in a nervous fashion with the trends of politics.

All of this makes it increasingly difficult to believe that investors will put much capital into the stock market. This will be particularly true if bonds remain lucrative.

Notwithstanding all this gloom, there is a consensus among several of the analysts that stocks will not go much lower — that is, barring some grave tragedy. Wall Street has already digested what appears to be the worst of the news from Iran and the rest of the Middle East.

Among the computer stocks, the market may have to digest the impact of IBM's 4300 series and other products on competitors and on the giant itself. One analyst feels that the third quarter of the year will indicate the impact of lower prices on IBM's earnings. He believes that the market will wait until after the summer to judge computer companies.

IBM sales pressure

BUYERS of IBM equipment may have more to concern themselves with than hardware performance and software unbundling, according to a leading advisory organisation. Buyers who let IBM salesmen suggest appropriate configurations to meet their needs also have to understand IBM's incentive plans.

According to the monthly advisory newsletter published by International Computer Nagotiations, some IBM producta bring salesmen better commiasiona than othars, and thia could be the reoaon one or anothar piece of equipmant found its way into a particular proposal.

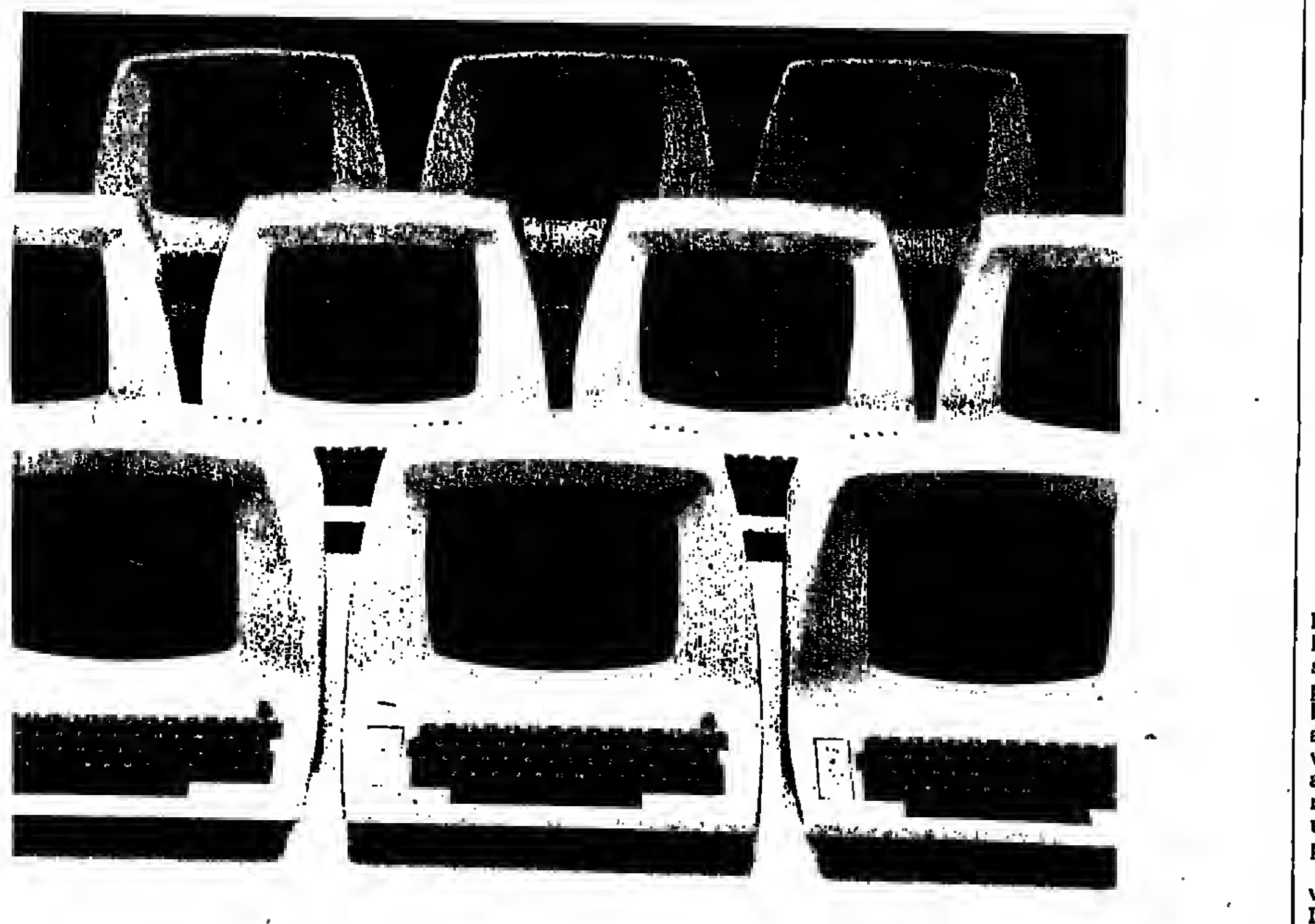
In its January 1979 issue, CNReport reviews IBM's salea compenaation plan as reported by another publication, Computer Marketing Nawalatter.

CNReport notes tha way IBM puts pressure on its salesmen to favour cartain producta by varying the amount of commission credit provided for a placement.

Salesmen at IBM are given points for equipment they install in their territorias and lose points for equipment that is returned. IBM may give credit to a salesman for IBM gear installed by a third party (such as a leasing company) if it displaces equipment provided by another vendor.

Because new equipment may be dramatically more cost effective than the machinery is replaces, IBM must vary its formula to ancourage placements of new equipment, but there may be a lag between the time new gear is introduced and the point when allocation policy is revised.

A byproduct of that policy was hesitancy on the part of some IBM salesmen to upgrade customers with older machines, or to preas for early delivery dates.



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TIM PALMER REPORTS FROM HANOVER FAIR

Siemens fights off the challenge of 4300 series

WEST GERMANY'S only mainframe manufacturer, Siemens Data Systems, put up a formidable show of new hardware at Hanover Fair in an effort to fight off the challenge from IBM's 4300 series.

Main feature of the Siemens announcement was a radical move to unbundle its operating software at the bottom end of its line, and the 7.708 and 7.718, ironically announced last May in anticipation of the 4300 series, reappeared with a new name and new pricing.

Although they still run the mainstream Siemens BS2000 operating system, they have been renamed the 7.521 and 7.531, and a new model, the 7.541, currently completes the line.

The hardware is offered at rock-bottom prices, but the software is available on a licence-only basis, and to prevent users attempting to transfer their existing system software to the new machines, parts of the operating system have been microcoded.

The 7.521 can be field-upgraded to a 7.531, and neither processor requires air conditioning, although some disc drives offered with them do. The 7.541 is a different processor and does need air conditioning.

The machines are offered with 16K memory chips, and base price for the 7.521 hardware with 512K-bytes of memory, console display, floppy drive, 300 lpm printer, three 63 Megabyte drives and four work-stations is DM 292,276, about £73,000. Software and maintenance together cost a typical DM 2600 a month extra.

The 7.531 comes with from 512K to 1.5 Megabytes, and the 41 with two or four Megabytes. Software attractions include a simple command language for use with Cobol programs, a Cobol acreen development system for fast writing of Cobol programs.

Despite what has been said previously, Siemens is targeting the top-end 7.800 machines at IBM users and not at its own user base. The machines — the Fujitsu M-180 and M-200 in Siemens colours — run the Fujitsu version of MVS, called OSIV/F4 by Fujitsu and BS3000 by Siemens.

Principal attraction of the machines to IBM users is that the overhead with BS3000 can be up to 30% lower than that of MVS, according to Siemens. It ia particularly economical in database and communications applications.

Siemens Data Systems did DM 1,6000 million, £400 million business in the year to September 30 1978, and is now breaking even on mainframes.

A surprising application for an office computer was demonstrated by Philips at Hanover. The company exhibited the smallest model in its P300 line, the P305, linked to a television set and being used as an off-line editing terminal for Bildschirmtext, which is the German name for the UK Prestel viewdata system. The West German Bundespost bought rights to the British software and has also installed several GEC 4080 mini computers which will form the basis of a test service.

Quick snippets from the Fair . . .

NIXDORF is to offer the Threshold voice recognition system for use as a peripheral with any of its computer systems, including the data telephone.

THE Microdata Express business system appeared at the show in Olivetti colours as the Olivetti 1900 — the largest computer system in the Italian company's line.

TWO major new Wang products made their European debut at the show — the Typesetter 48, designed for in-house typesetting with a Wang word processor, and the Intelligent Image Printer, a low-cost 100ft 1pm Xerographic printer.

VIDEOTON of Hungary showed its own version of the French Mitra minicomputer as the Videoton 600. Built under licence in Hungary, it has not yet been announced by SEMS in France.

Outstanding offerings on the WP scene

THOSE who managed to track it down amid the bewildering array of new and revamped hardware at Hanover were in agreement that the Triumph-Adler word processor, marketed by Diehl Datensystem in Germany, was one of the outstanding new offerings at the show.

Coyly named the Bitsy, and shown above in minimum configuration the device deserves a name more in keeping with its power and potential. It is built around the Texas Instruments TMS 9900 16-bit chip, which means that the full range of TI 900 series compilers and software are available as options on the Bitsy.

For a starting price of DM 23,350, about £5,840, the Bitsy offers two 80K-byte minifloppies, a Triumph-Adler golf-ball printer and a full screen. Ergonomic attractions include a tilting screen and a separate keyboard, so that the operator can move it around the desk.

From the basic Bitsy 1, which is also available with a Qume daisywheel printer, the system can grow to a Bitsy 2, which offers two 350K-byte floppy drives and costs DM 38,000, or to a Bitsy 3, which has two 2.3Mbyte hard discs, one fixed and one exchangeable and costs DM 55,400.

Future expansions include a shared logic version with up to six stations, which can either be slaved or intelligent.

The Bitsy was designed by Triumph-Adler with consultancy from Omnidata, the company set up by ex-Wordplex luminary Paul van Alstyne. Omnidata plans to build the Bitsy in Los Angeles for US marketing by Triumph-Adler's Royal typewriter subsidiary.

● The new ICL 7700 information processing system, shown below, also made its debut at the show. Designed specifically for ICL mainframe users, it costs £17,500 for a stand-alone dual screen system which consists of one display with built-in 7500 series processor and a second slaved off it. But the vital additional feature is the Wordskil Manager mainframe package written by Dataskil and costing £8,000.

Currently available to 1900 users, it will be extended to 2903/4/5 users in June, and to 2900 VME/B users in August. Among the features of the mainframe package is a "Mailbox" electronic mail facility.

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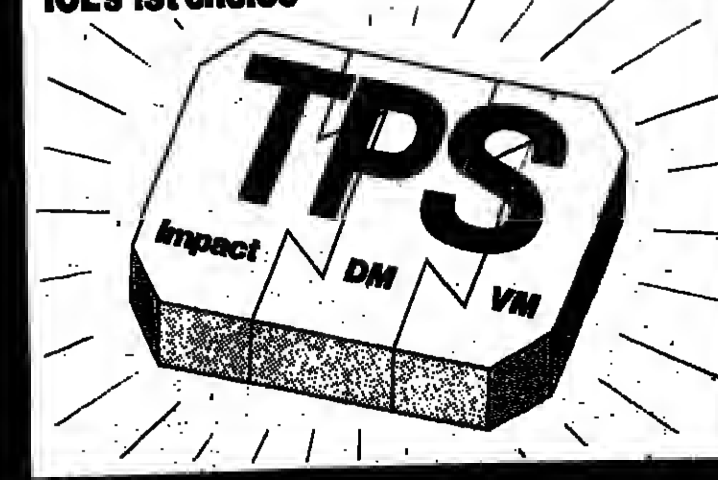

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COMPUTER WEEKLY INTERNATIONAL

Here is the news— German style

THE German Press agency, Deutsche Presse-Agentur of Hamburg, can now disseminate news stories and other editorial material all over Germany directly from VDUs like this, using an ITT 6400 ADX message switching system built in the UK.

In 1973 DPA became the first news agency in Europe to introduce editing on VDUs and now has 86 intelligent VDUs linked in clusters to the ITT system via 14 lines of 2400 baud each.

The 6400 in turn has eight lines linked into EDS, the German Post Office's national circuit switched data network, which handles telex and teleprinter traffic as well as data (CW, July 15, 1976).

The 6400 hardware includes dual General Automation 18/440 processors and 48 Megabytes of moving head disc storage, while the software enables text to be prepared, edited and retrieved as well as transmitted and received.

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INTERNATIONAL NEWS IN BRIEF

NEC likely to renew licence

DESPITE expectations to the contrary on the Honeywell side (CW, July 27, 1978) reports from Japan say that Nippon Electric will renew its licence agreement with Honeywell on a broad front.

The flow of expertise and technology has largely been towards NEC since the agreement was first signed in 1962, but the Japanese company's technology has made major advances since then, a fact which becomes evident when NEC's and Honeywell's respective answers to IBM System 38 are compared (CW, March 15).

Soviet deal

ONE of the most energetic US corporations in attempting to build bridges through trade, Control Data, has signed a new agreement with the Soviet Union to market Soviet technology in the US.

Flight simulator

A BOEING 747 flight simulator is to be installed by Thai Airways International at its training centre near Bangkok. Produced by the Link-Miles division of Singer, the simulator will be controlled by an SEL 32/77 computer.

Brazil plant

PLANS have been made by BASF to establish a magnetic tape plant in Brazil to meet the demands of the local market. It will be on a site next to the company's audio-cassette production plant at Guaratinguetá, Sao Paulo. Production is expected to begin in early 1980.

Carter proposes privacy legislation package

A PACKAGE of proposals for privacy legislation, covering the private sector, has been presented to the US Congress by President Carter. The proposals continue the US practice of having no government agency to implement the law, leaving individuals to take action in the courts.

There is also no attempt to have an omnibus law covering all information. Instead there will be specific laws dealing with individual areas, such as medical records, insurance, banking, and electronic funds transfer. At the same time, Carter has called upon private industry to implement privacy protection voluntarily, something that is already happening in the US (CW, March 15). Where voluntary compliance can "sufficiently protect" individual rights, legislation would not be recommended.

The first Bills to be introduced in Congress will be intended to safeguard confidentiality of medical records and information collected through federally-funded research projects. Later will come a "Fair Financial Information Practices Bill" which promises to be very complex; the National Telecommunications and Information Administration is currently working on this.

President Carter also called on state governments to provide privacy protection over social security and social services records, and to tighten up security on such systems as those for criminal justice information.

Carter said that his proposals were based on the recommendations of the Privacy Protection Study Commission and were based on two principles, "fair information practices" and "limits on government". The first includes individuals' rights of access to records, and the correcting of errors.

Also, Carter said, "They should be told the basis for an adverse decision that may be based on personal data."

On the second, the President said, "Government access to and use of personal information must be limited and supervised so that power over information cannot be used to threaten our liberties."

Henry Geller, head of the NTIA, said that the new proposals were based on the existing Right to Financial Privacy Act of 1978, which limits the powers of tax authorities and the like to inspect bank records.

Amdahl moves into Belgium

MAKING its first conquest in Belgium, Amdahl has installed its largest currently-available mainframe, the 470V/7 at the Bell Telephone Manufacturing Company in Antwerp.

The company is part of the giant ITT multinational empire, and in going Amdahl, the Belgian company has followed several of its US namesakes in replacing IBM machines with 470s. The US companies belong to AT&T; ITT has hived off from AT&T under an anti-trust settlement between the two World Wars.

The Belgian company also has an IBM 3033, and that and the 470 have taken over the workload of a 370/168 and a 370/158. The machines are running the MVS operating system, using an IMS database with TSO time sharing software.

Mohawk just the ticket

HANDLING up to 3,000 traffic tickets and summonses a day, the Johannesburg Council's traffic department has decided to switch to a computerised system in July.

Operations will then be handled by an £80,000 Mohawk Data Sciences 2410 machine with 64K main memory and enough disc storage to hold 150,000 traffic records. Particulars of the vehicle and its owner will be available via access to files on a Burroughs B6700 at the Transvaal Provincial Administration in Pretoria and on ICL 1904S at the data processing department of the Council.

US electronic information exchange experiment welcomed

A LARGE-SCALE experiment into the use of computer networks by research workers to communicate with each other is being funded by the US National Science Foundation, and is getting enthusiastic response from its 500 users worldwide.

Called the Electronic Information Exchange System, the experiment uses as host a mini at the New Jersey Institute of Technology connected to the Telenet network, and ordinary dial-up terminals for each user.

Efforts by researchers in the UK to take part in the project have been blocked by the Post Office, as Telenet would be breaching the message-carrying monopoly.

EIES can be used in any one of five modes:

- Exchanging Messages, whereby each user has a "mailbox" into which others can write notes, for him to see whenever he logs on.
- Conference Mode, in which several people can go on adding comments to a single conference file, asynchronously. Each time a participant logs on, he is told who is taking part in the "conference" and how many new comments have been added since he last looked.
- Shared Notebook, a facility to aid joint authorship of papers.
- Online Journal. One person is the editor, to whom others submit papers. The editor can have these papers refereed by other users, he can edit them, and then can "publish" them by making them accessible to all users.
- Online directory, which gives information on all participants, with their addresses and interests.

John Senders, an engineer at the University of Toronto, is convinced of the superiority of this "electronic publishing" over traditional methods. "It's the end of the Gutenberg era," he says.

There are seven operational trials being run on EIES at the moment, to see if scientists and engineers can improve their productivity this way, and Senders is taking part in one of the biggest, dealing with the subject area of Mental Work Load.

Senders feels that the speeding-up of the process of writing research reports, getting them published, and getting response from readers is of great value.

Harold Bamford, of Information Sciences in Washington, described the system to Computer Weekly as "a lab without walls". Within North America the setting up of the user community has gone smoothly, he said.

£800,000 Qatar order

COMPUTERISED telemetry equipment from Serck Controls of Queensway, Leamington Spa, is to be used for remote supervision and control of a gas production field in West Qatar and a pipeline to transport the gas to users in East Qatar.

The £800,000 system will incorporate a duplicated multi-microprocessor sub-master station at Fahahil and this will supervise four well head treatment plants. Data from this station will then be relayed to a master control centre at Doha which will handle the pipeline supervision through six outstations along its length.

The main station will house duplicated Serck 2D1-E minicomputers each with 128K of core storage. Full colour video terminals will be used for input and display of data at the station while remote terminals will be installed at two engineers' residences and in Government House, Doha, HQ of the [illegible]

Special travel arrangements to visit the Compec Europe Exhibition
(Brussels)

IPC Electrical-Electronic Press Ltd., the world's largest publishers of computer, electrical and electronic journals, have made special arrangements for readers wishing to visit the Compec Europe Exhibition. The cost includes — travel by scheduled airline from Heathrow ✱ accommodation has been reserved at the Sheraton Hotel, Rogier Place ✱ arrival and departure transfers ✱ admission to the Exhibition ✱ services of an experienced tour manager.

CW

Tour A May 6-May 11 1979 (5 nights) at the Sheraton Hotel from £205.00 ☐

Tour B May 8-May 10 1979 (2 nights) at the Sheraton Hotel from £146.00 ☐

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Reference R313/79/CW

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Reference 352/79/CW

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Application forms are available by telephoning Bristol (0272) 848238 during office hours or by writing to the Personnel Manager, Bedminster Down, Bridgwater Road, Bristol BS13 8AN, and should be returned by no later than May 10th, 1979 quoting the relevant reference.

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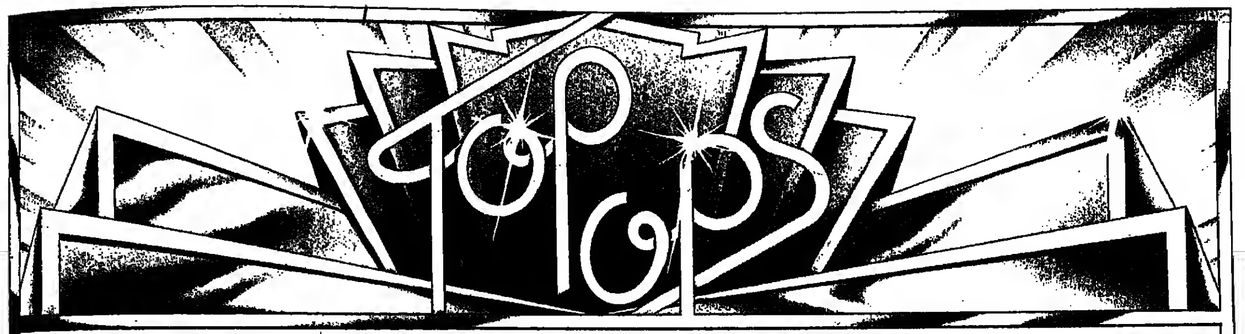

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Personnel Administration Manager, Debenhams Computer and Administration Centre, Park Street, Taunton, Somerset. Telephone: Taunton 87979 ext 386.

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N.W. London/ Midlands

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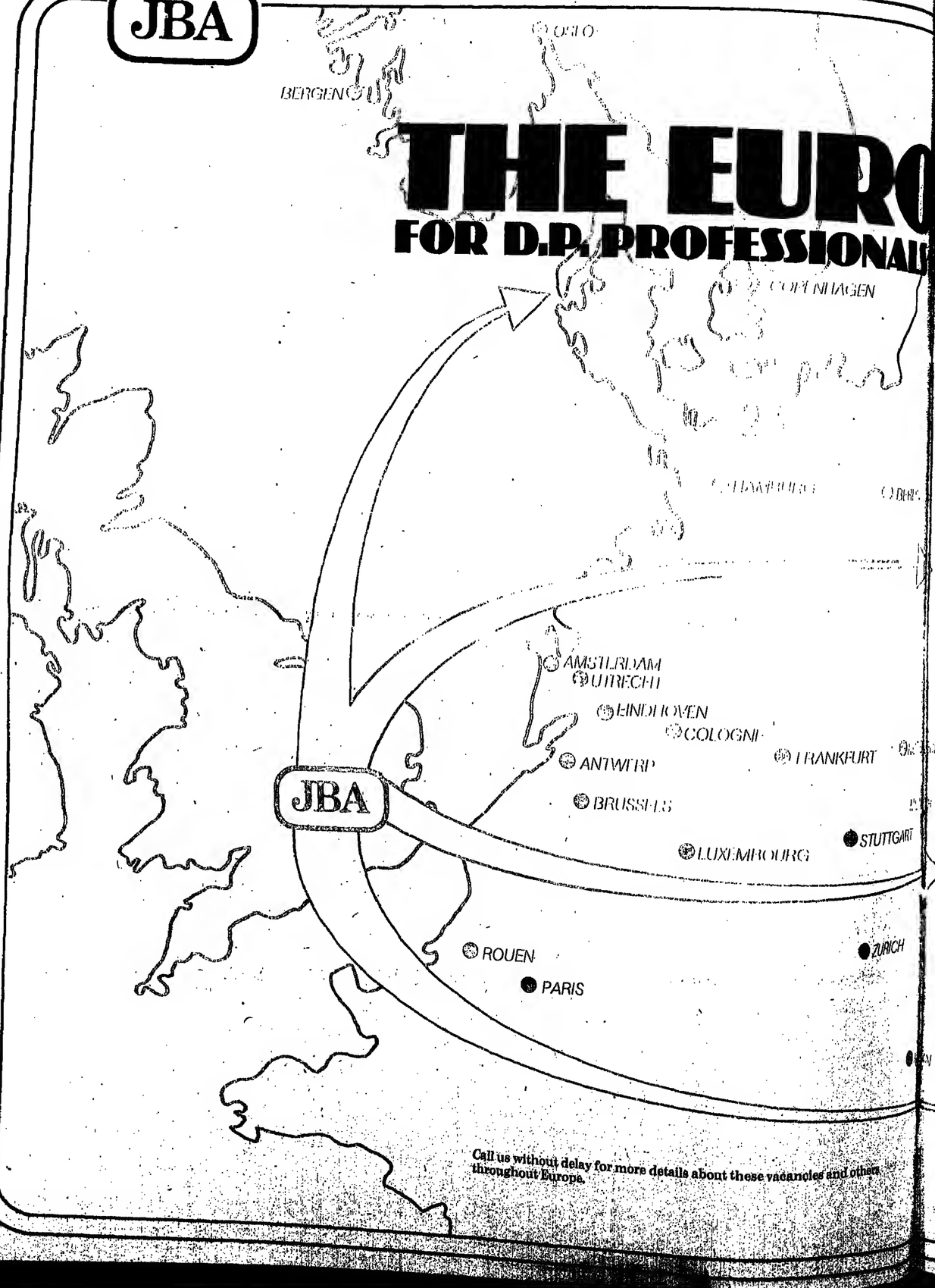

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FOR D.P. PROFESSIONALS WHO ELECT TO WORK ON THE CONTINENT

Why even consider the Continent? Because it does provide a natural alternative to the U.K. – the standards of ilving are a great deal higher – the status of British d.p. professionals abroad is greater since they are recruited as specialists – job interest is usually increased since the demand for expertise is invariably in development areas. All the things one looks for from a new job – only more of them. Yes, the cost of living is higher but so are the salaries and the relative standard and quality of life. A carefully planned period of employment can easily be translated into a very profitable exercise – we can advise on this.

Having successfully completed recruitment assignments for a considerable number of overseas projects, notably in Europe, JBA are now embarking on a renewed campaign for our growing European client base. We are therefore able to offer increasingly diverse opportunities for a wider range of d.p. skills than ever before. It is worth remembering that one can sometimes choose between contractual and permanent positions and that contractors often have the option of going permanent on termination of their minimum 1 year contract. Furthermore, contractors can either be employed on a staff or freelance basis.

APPLICATIONS PROGRAMMERS

Germany — **from £14,000-£17,000**

One of the largest computer services companies in Europe requires several experienced IBM 370/158/168 applications programmers, specifically with 3-4 years COBOL and/or PL/I. The site has a large MVS system, so direct and recent experience on a similar installation is ideal.

MESSAGE-SWITCHING CONSULTANTS

Southern Germany — **£17,500-£25,000**

Several permanent positions are available for experienced, high-level technicians capable of making a major contribution in this still growing area of computer technology. Appointees will find that a well-defined career-path is open to them, leading to either senior technical or projects management positions with salaries in excess of £30,000.

SYSTEMS PROGRAMMERS

Munich — **£18,400-£26,200**

No doubt you are always seeing Systems Programmer requirements for Europe and have not yet been tempted to apply. JBA now have six really superb vacancies in the Munich area with four different companies who are offering employment either on a permanent or a contract basis. The salaries offered are very 'up-market' and, we think, highly competitive with alternative opportunities – but you have to be good to be seriously considered.
The vacancies are all for OS/MVS experienced programmers who have worked on 370/148 installations or larger. The activities of the programmers will range from upgrading or conversion projects to the attachment of mini TP/comms networks to large IBM machines. The Programmers will enjoy a high status in each of the client companies and their knowledge and experience respected and sought after, enabling a high degree of creativity and innovation.

COMMUNICATIONS SYSTEMS DESIGNERS

Munich-Darmstadt — **c£15,000-£20,000**

A new team is being formed, within a highly successful European computer manufacturer, to design communications software for their mini computer product range. All programming will be in Assembler language. JBA has been retained to recruit entire team including the team leader.

IMS/IDMS SPECIALISTS

Benelux — **c£17,000+**

A number of openings exist within this U.K. Based software/systems house for Database consultants, especially those with extensive IDMS or IMS experience, to join long-term projects in Senior Advisory and Consultancy positions.

BANKING SYSTEMS

Milan — **£12,000+**

One of Europe's leading Systems Houses wishes to appoint a Banking Consultant to work in Italy.
Ideally candidates will have at least three years experience of d.p. systems in a British or Continental bank and will therefore be thoroughly familiar with standard banking systems implemented on mainframes or mini computers. Ability to manage a project and liaise with clients is essential.

SYSTEMS SOFTWARE (OS/VS & MVS)

Holland/Belgium — **High Salaries Neg.**

This leading U.K. specialist software house has had a subsidiary company operating in Benelux for many years, and is able to offer senior project positions to IBM systems technicians who either wish to make a career in Europe, or who are considering spending just n few years nut of the U.K.

MINI ASSEMBLER PROGRAMMER

Munich — **c£13,500**

An unusual chance for a relatively junior individual, with around two years sound mini Assembler experience, to start a career in Germany. The company specialises in communications work, front-ending their own minis to (mainly) large IBM machines, so a software development or communications background would be ideal.

SYSTEMS ANALYSTS

Nuremburg — **£15,000-£19,000**

This major computer services bureau is embarking on a major re-development of their hardware – upgrading from 370's to 303X machines – to give an expansion and improvement of the services they offer. Naturally a great deal of new systems development is to be carried out concurrently, and consequently a number of vacancies for experienced commercial Analysts, with sound technical (OS) background, have been created.

DEC PROGRAMMER/ANALYST

Essen — **£16,000-£17,000**

One of Germany's largest established and most diverse software houses has a long-running project with a major public utility in Essen, which still has room for an experienced PDP11 programmer. The team is mainly scientific and technically orientated so candidates must have a thorough grounding in both FORTRAN and MACRO-11. Candidates must have a significant degree of fluency in German.

Returning to the U.K. after having spent a period abroad is not as difficult as one might think. Not only is one's experience of life broader and deeper than it might otherwise have been, but one's technical and commercial skills are also likely to have been enhanced. You will certainly be at least as much in demand and the choice of organisation and type of job thereby considerably widened. JBA is more than willing to re-settle people coming back to the U.K. and administer all the interview arrangements.

Call us without delay for more details about these vacancies and others throughout Europe.

Contact: Mike Creamer or Andy Wright
JAMES BAKER ASSOCIATES International Personnel Consultants,
16 Maddox Street, London W1. Tel: 01-491 4478

Datasolve International

Contract Vacancies

ICL 2900 VME/B Cobol
We have requirements for programmers, analysts and systems programmers for long and short term 2900 contracts in UK/Europe.

PDP Basic Programmers — HOLLAND — **c. £20,000 p.a.**
A large successful Chemical Company have immediate and future vacancies for Basic, Basic + 2 and Mumps people to work on a variety of different systems. Remuneration will be c. £20,000 p.a.

Microprocessor Experience — W.GERMANY
We are seeking candidates with sound INTEL 8080 experience or similar background for forthcoming assignments over the next few months. First time contracts are welcome to apply

U.K.

IBM OS COBOL + IMS	—KENT
IBM IMS SYSTEMS ANALYSTS	—KENT
IBM OS COBOL + IMS	—BEDS
IBM SYS 34 RPG II	—NORTHANTS
IBM RPG II + CCP	—N. LONDON
VENTEK DATASHARE	—N. LONDON
PDP DATABASE DESIGNER	—HANTS
PDP ASSEMBLER/CORAL	—HERTS
D G NOVA ASSEMBLER + REALTIME	—HERTS

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OVERSEAS

ICL 2900 VME/B SYSTEMS PROGRAMMER	—GERMANY
INTEL 8080 ASSEMBLER	—GERMANY
PDP FORTRAN	—HOLLAND
PDP FORTRAN + REALTIME	—BRUSSELS

Call Richard Kaluzynski, Neil Williams or Suzy Gillam for details

IMS Experience?
Earn up to £12,500 p.a.

We have an increasing number of vacancies for programmers with experience of IMS. If you have these skills and would be available to start work at any time in the next three months, a call to Neil or Richard at once would be well worth while.

If you don't generally do contract work you may still find that we can offer you some interesting alternatives. And we're part of the BOC Group — big IMS users themselves.

Knight

All vacancies are open to both male and female applicants. Phone anytime, or for an application form leave your name and address with our answering service

Knight Computer Services Ltd.,
14 Old Park Lane, London W1Y 4NL.
Staff Services Division of BOC Datasolve Group and a member of Computing Services Association

01-491 4706
OR WHEN BUSY 01-439 3411.

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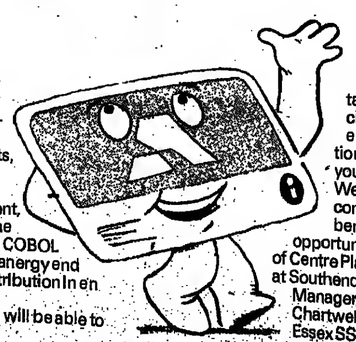

Access hes one of the festest growing and most sophisticated CICS/VS installations in Europe, and with mora people discovering just how useful it is to have e flexible friend every dey, there are exciting opportunities at ell levels for enelysts, systems programmers and programmers with experience of Betch or online processing.
You'll be working with IBM mainframe equipment, including new 3032s, and helping to develop the systems for the future. A knowledge of BAL end COBOL will be en advantage, but most important is the energy end the innovetive ebility to make a worthwhile contribution in en exciting environment.
Our teem operates on e flexitime system, so you will be able to take full advantage of our location, end miss ell the crush of commuting. There's plenty of challenge, end excellent prospects within our growing organisation, so a move to Access at Southend could be the best in your career.
We offer competitive salaries, attractive employment conditions, a non contributory pension scheme and other benefits. If you are interested in hearing more about these opportunities then telephone Rosemary Horwood, Head of Centre Planning or David Ashman, Head of Data Processing at Southend 352211, or write to John McVitie, Recruitment Manager, The Joint Credit Card Company Limited, Chartwell House, 365, Chartwell Square, Southend-on-Sea, Essex SS2 6ST.

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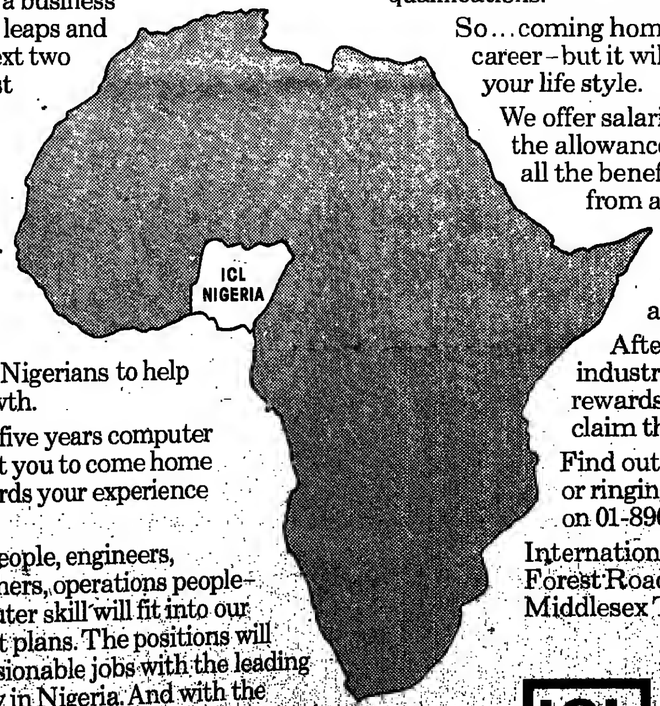
Computer Professionals

Up to ₦20,000 p.a.

the current rate of exchange for your expertise

While you've been working in the computer industry away from Nigeria, something very interesting has been happening back home.

ICL have been developing what was a smallish sales operation into a business which is growing by leaps and bounds. Over the next two years we aim at least to double our turnover. With a bulging order book and a clear position as the leading mainframe supplier in Nigeria, we are certain we can achieve our target.



But we need skilful Nigerians to help us support this growth.

If you have at least five years computer experience, we want you to come home and claim the rewards your experience has earned you.

We need systems people, engineers, programmers, teachers, operations people – nearly every computer skill will fit into our career development plans. The positions will be permanent, pensionable jobs with the leading computer company in Nigeria. And with the company growing so fast we will be looking to you to develop our junior staff and to move into management jobs later. A job with ICL will mean prestige now and a big future for you.

We will, of course, give you specific training on ICL's 2900 range of computers – but we can't emphasise enough that it's practical computer experience we require as opposed to a string of qualifications.

So... coming home will accelerate your career – but it will also improve your life style.

We offer salaries up to ₦20,000 and the allowance package will include all the benefits you would expect from a company which understands Nigeria – housing, transport, medical and so on.

After five years in the industry, you've earned the rewards – come home and claim them.

Find out more by writing to or ringing John Dunleavy on 01-890 1414.

International Computers Limited, Forest Road, Feltham, Middlesex TW13 7EJ.

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145 WARDOUR STREET LONDON W1V 3TB
TEL 01-439 3671

Mathematician/ Scientific Programmer

GKN Group Technological Centre wish to recruit a Mathematician/Scientific Computer Programmer to join a team working on a variety of problems in the field of engineering computing.

The main interest of the group is stress analysis using the finite element method and the successful man or woman will be required mainly to develop computer programmes to assist in the modelling of complex 3 dimensional shapes and in the development of finite element meshes from these models. This is an ideal opportunity, therefore, to gain experience in techniques of computer aided design as well as those of finite element analysis, and you will also become involved in the use of computers for large-scale numerical calculations and for interactive graphics.

You should be aged under 30, have a good honours degree in mathematics and some experience of FORTRAN programming, preferably in a time-sharing environment. Past experience is not so important as the ability to handle new problems effectively and enthusiastically with minimum supervision.

Please write in confidence to:

The Personnel Executive
GKN Group Technological Centre
Birmingham New Road
Lanesfield, Wolverhampton

GKN-Britain's largest international engineering group

EDITOR FOR COMPUTER WEEKLY

An editor is required for Computer Weekly, Britain's leading computer publication which is distributed to more than 82,000 computer personnel in the UK every week, and to a further 12,000 overseas readers ten times a year.

The post, one of the major editorial positions in the UK technical press, will, ideally, be filled by a person with experience of both journalism and the computer industry.

The successful candidate will be required to maintain the high technical and reporting standards which have been built up over the past twelve years, making Computer Weekly the leading newspaper of the computer business.

In this task the editor will be able to call on a team of 14 journalists whose technical ability and experience are second to none, in the field of computer publishing.

Directing and motivating this team, and formulating the editorial policy in conjunction with the publisher will be the editor's main responsibilities.

The salary is negotiable, depending on the successful candidate's qualifications and experience, but will be commensurate with the position of Computer Weekly as one of the most important journals to be published by IPC Business Press.

Please apply to Chris Hipwell, Editorial Director, IPC Electrical Electronic Press, Dorset House, Stamford Street, London SE1.

Systems Analyst
Bedfordshire
Circa £7,500

This appointment which is within an international company based in Luton, arises through internal promotion.

The successful applicant will join a professional data processing team developing sophisticated systems on the Company's new ICL 2960 installation.
Male or female candidates aged 24 or over must have a minimum of 2 years experience of designing and implementing applications.

The Company offers generous relocation assistance and benefits include a non-contributory pension scheme and free life assurance.

Telephone or write to Ian Richardson for details and subsequent local interview.

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Department of Business Studies

LECTURER 1

in BUSINESS DATA PROCESSING & COMPUTER STUDIES to teach on BEC National and General, IAS TOPS and similar courses. Teaching would include statistics or business numeracy

LECTURER 2

in BUSINESS DATA PROCESSING & COMPUTER STUDIES for the above courses and to discharge a course responsibility. Salaries
L1 £3,192-£5,334 plus LW £327
L2 £4,101-£6,858 plus LW £327
Further particulars and application forms from The Principal, Hounslow Borough College, London Road, Isleworth TW7 4HS, on receipt of S.A.E. Closing date 14 days from appearance of advertisement

LEICESTER POLYTECHNIC COMPUTER CENTRE (USER SUPPORT SECTION)

The Centre is looking for two

PROGRAMMERS

who will have the opportunity to work on a wide range of applications

Persons appointed to the posts are expected to be of graduate status and preferably to have had some min. relevant experience since qualifying

Salary £3279-£4146 p.a.

Application forms available from Staffing Officer, Leicester Polytechnic, P.O. Box 143, Leicester LE1 9BH Tel (0533) 50181, Ext. 2303

University of Edinburgh
Edinburgh Regional Computing Centre

COMMUNICATIONS MANAGER

Applications are invited for a senior manager to lead a team of programmers working on the development and maintenance of the Centre's communications network. The network includes about 300 terminals, both interactive and batch, and provides connections to the Centre's main computers (2980, 2970 and two 4-75s) and to the universities of Glasgow, Strathclyde and Newcastle. A connection to PSS is planned.

The network has been built up over a number of years and includes a variety of hardware, mainly CTL and DEC equipment. The main immediate objectives are to improve resilience of the network to component failures, and to plan for the introduction of international standard protocols, as they become defined, and the gradual replacement of the original hardware.

The post is graded as Computing Officer 4, in the range £7506-£8283 (under review). Application forms and further details may be obtained from the Secretary, University of Edinburgh, Old College, South Bridge, Edinburgh EH8 9YL. Closing date 18th May, 1979. Please quote Reference 7006.

Operations in Hampshire

We are a rapidly expanding subsidiary of the TSB Central Board based in the heart of the Hampshire countryside and dealing with Life Insurance and Unit Trust. This is an opportunity for Computer Operations professionals to join, at a senior level, the operating team of an expanding Data Processing Department.

We have recently converted to a Large Systems Burroughs B6800, with peripheral devices that will include UCR Tapes, removable and fixed discs and two Line Printers.

The system, when fully operational, will support a major on-line Database, a Datacommunications network with visual displays, remote job entry and batch processing.

Both vacancies carry a competitive salary commensurate with the expertise involved. Substantial Company benefits including subsidised Mortgage Scheme, relocation where appropriate and non-contributory pension scheme are also offered to the successful candidates.

Chief Operator
Starting salary up to £6,300 (ref.CO/8)

To co-ordinate and control the work of a busy team of operators, who currently work two shifts. Applicants should have a wide knowledge of Data Processing with at least five years supervisory experience on a large operating system in a real-time environment. Burroughs Large Systems knowledge is desirable, but applicants with other mainframe experience will be considered.

Communications Controller
Starting salary up to £6,000 (ref. CO/7)

Applicants, should have at least five years in Data Processing preferably with experience in Data Communications techniques and network control. This is an opportunity for an enthusiastic person to grow with a network that is currently being formulated and in which the successful applicant will play a major role.

Responsibilities will include the day to day control of the network and maintenance of a close liaison with users and Support Groups.

Please phone or write to: (quoting reference)

The Personnel Department,
TSB Trust Company Limited,
Keens House, P.O. Box 3, Andover, Hants.
Telephone: (0264) 62188 Ext. 288

Closing Date: 4th May 1979

TSB Trust Company Limited

SENIOR PROGRAMMER
North-West England

Gwilym Jenkins & Partners Ltd. is a consultancy organisation specialising in the use of statistically based software for business and economic forecasting

We are looking for an experienced scientific programmer to become the senior member of a small team of programmers developing both new and existing software. In addition to his programming duties, the Senior Programmer will also take specific responsibility for:

- managing the installation, and subsequent maintenance, of GJP software products on clients' computers
- advising on the programming feasibility of enhancement and new product specifications
- maintaining standards of programming and program documentation within the team.

Substantial experience of FORTRAN is required and a knowledge of statistical applications would be an advantage.

Salary will be in the range £6000 — £6500 with excellent benefits including a pension scheme and profit-sharing bonus. The job will involve both UK and overseas travel.

Applications with full c.v. should be sent to:

Mr. Carl Bolus,
Gwilym Jenkins & Partners,
Parkfield,
Greaves Road,
Lancaster, LA1 4TZ
Telephone: Lancaster 81631.

UNIVERSITY OF HONG KONG

SENIOR COMPUTER OFFICER I/II

Applications are invited for two posts of Senior Computer Officer I/II in the University Computer Centre. One of the appointments is in the area of academic user services. The successful candidate is to organise and develop user services on all the Centre's computer facilities and to provide consultancy and support to academic staff members and students. Applicants should have extensive prior experience of user services in a university or other education/research institution.

The second appointment is for support of the University's administrative applications, in analysis and implementation of new systems and in review and conversion of existing systems. Applicants should have a minimum of three years of experience in system development work in a university or similar organisation. Preference will be given to persons with experience in on-line applications.

Annual salaries (superannuable) will be Senior Computer Officer I: HK$98,700 x 4,260 - 120,000; Senior Computer Officer II: HK$78,320 x 4,260 - 109,140. (£1 = HK$10.00 approx).

At current rates, salaries tax will not exceed 15% of gross income. Housing at a rental of 7½% of salary, education allowances, long leave and medical benefits are provided.

Further particulars and application forms may be obtained from the Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF, or the Assistant Secretary (Recruitment), University of Hong Kong, Hong Kong.

Closing date for applications is 31st May, 1979.

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Programmers urgently required for Industrial and Scientific Development £3,500-£8,000
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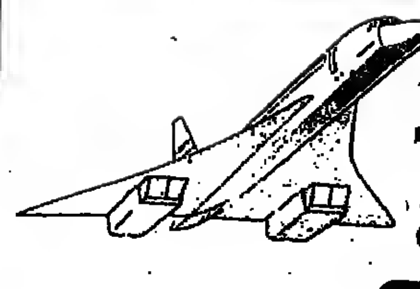
These two issues are affected by the Bank Holidays. Copy for both should be sent early to arrive not later than the Friday preceding date of publication. ONLY a small amount will be accepted on each Tuesday morning. Your co-operation will be much appreciated.
For further details contact David Abler,
Tel: 01-261 8019. Telex Bisnespress London 25137

Civil Aviation Authority



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We run an ICL 2960 with DME/GEORGE II, BMEEP and VME/B on a three shift system. The successful candidate will supervise the efficient operating of the ICL 2960 computer and outside prime shift hours will be responsible for the whole computer operations area.

Applications are invited from George II/1900 or DME operators with at least two years experience. VME expertise is desirable but not essential as training will be given where necessary. Applicants should possess good 'A' levels or equivalent.

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SALES DIRECTOR COMPUTERS

THE COMPANY
Donoghue Information Systems Ltd., is a privately owned company which has been operating successfully in the computer field for the past 10 years. We sell Computers, Mini-Computers, Bureau Services, Consultancy, Systems, Programming and Data Preparation support to the whole cross-section of Commerce and Industry.

We currently operate in the Midlands, the North West, Southern Ireland and expansion plans include London in the near future.

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This is a new position and the man appointed will have total responsibility for sales policy and the achievement of sales objectives including the recruitment and training of sales personnel.

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The person required will essentially prefer to work for a smaller Company where his wide ranging responsibilities will provide him with a deep and active personal participation in the growth and successful of the company.

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1. Reply to a rather vaguely worded advertisement which you think refers to you.
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6. Arrive back late in office.
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Lansdowne
For those too busy doing a good job to find a better one.

Join Data General's Software Professionals

Our Systems Engineering group requires additional software support specialists.

They will be joining a totally committed industry leader who believes in giving clients a professional service from the word 'go'. That's what has made us the world's fastest growing company in the business with more than 50,000 installations world-wide.

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You'll be into every type of industry and business ... commercial Data Processing, on-line file inquiry, communications, instrumentation and control and so on. You will also be involved directly with customers presentations and advise on their applications.

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Data General systems range from microprocessors to the Eclipse M600 with up to 2 MB of main memory — all supported by a vast array of upward compatible systems software — ranging from small real time executives to multifunction operating systems — and including a list of programming languages unrivalled on mini-computer systems. This is an opportunity and a challenge which is not available to many people in the computer industry.

Systems Engineers

You'll provide both pre and post sales technical consultancy. Salary packages of up to £8,000 plus a company car and participation in our Incentive scheme. Naturally, we will provide assistance with re-location if necessary.

We'd like to know about your progress to date — and where you see your career going. You must have in-depth experience of software from either an advanced applications or systems programming background. You should have the personality to get on with clients and be able to talk commercial problems with them.

You'll be working in London and Home Counties. (But if you live in the Midlands, a vacancy exists for the Manchester area). If you're a Systems Analyst with your feet firmly planted in one boring spot — this is the ideal opportunity for you to consolidate your career experience.

The next step

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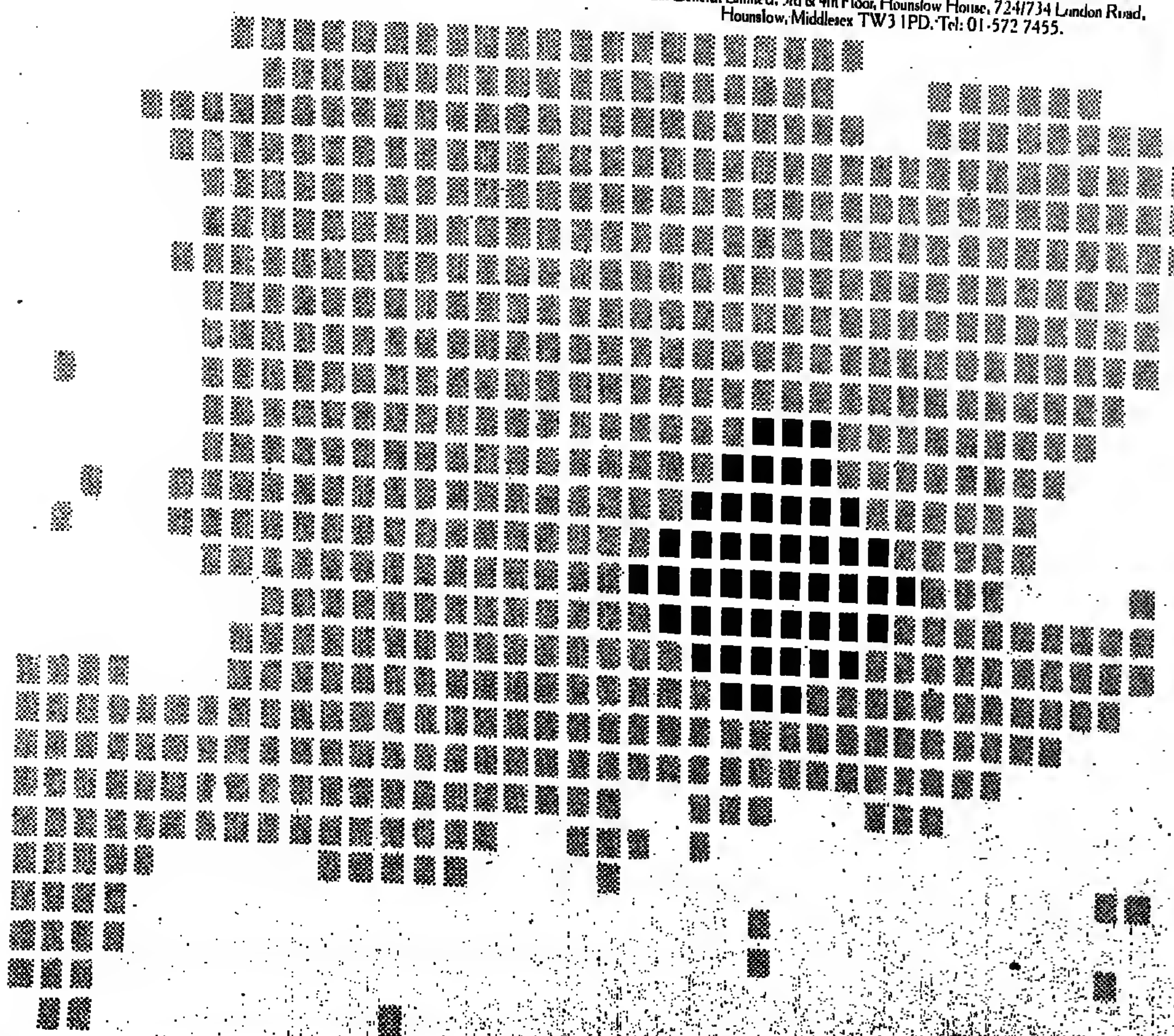
Data General

Data General Limited, 3rd & 4th Floor, Hounslow House, 724/734 London Road, Hounslow, Middlesex TW3 1PD. Tel: 01-572 7455.



THE ISLE OF MAN CIVIL SERVICE

CHIEF PROGRAMMER

Applications are invited for the post of Chief Programmer within the Computer Section of the Treasury which post has a salary scale of £4,370 to £5,... per annum.

The ... will ... under the ... at the point appropriate ... and experience ... will be responsible for the planning, writing, testing and maintenance of all programs. The Treasury currently operates a Sperry Univac ... under OS - 3 with U200 and UTS400 terminals ... with VS9 being projected over the next two years. Applicants must have at least four years programming experience using COBOL and RPG II, preferably with UNIVAC systems together with a good appreciation of manufacturers software.

The post is permanent and pensionable on a non contributory basis ... for a contribution of ...% towards family benefits) and arrangements exist for the transfer of certain pension rights. A removal expenses grant of £... is payable and the standard rate of income tax in the Island is 21¼ per cent.

Further particulars of the post can be obtained from the Treasury.

Applications stating full name, date of birth, address, qualifications and experience, should be submitted, together with the names and addresses of two referees, to the Secretary, Civil Service Commission, Government Offices, Douglas, by the 4th May, 1979, or within fourteen days of the date of this advertisement.

SENIOR COMPUTER OPERATOR

NORTHAMPTON

The Company is a member of the Brooke Bond Liebig Group and the position is at its Head Office in Northampton.

The successful applicant will be responsible for the operation of the company's new IBM System 3 computer and will report direct to the Chief Accountant. Several years' commercial experience and some knowledge of RPG II is essential.

The position will be attractive to anyone qualified who is currently earning about £4,000 p.a. and is looking for an opportunity to step out into a new environment.

Northampton is an expanding town situated in an attractive rural setting with easy access to the Motorway system.

The position offers attractive fringe benefits including membership of the Brooke Bond Liebig Pension Scheme. If necessary, some assistance with removal expenses will be available.

Applicants should please send a detailed career history to:

Mr. S. V. Bavell, ACA, Chief Accountant
BAXTERS (BUTCHERS) LTD.
Albion House, Victoria Promenade, Northampton NN1 1HG

BAXTERS
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COMPUTER OPERATIONS CONTROLLER

Newcastle-upon-Tyne
up to £6774

The British Gas On Line Inspection Centre, has achieved an international reputation for the development of improved methods for inspecting high pressure pipelines. This has involved making use of advanced technology in several fields, namely electronics, computing, and mechanical engineering.

Due to rapid expansion, the Centre is moving to Cramlington Northumberland but is currently at Killingworth, Newcastle-upon-Tyne.

You will be required to supervise the analysis of defect inspection records and provide a general computing service to the organisation. The responsibilities cover all aspects of computer operations and include supervision and training of operators in the interpretation of displayed defect signals. You will be expected to organise and maintain a shift work system. This is a new post calling for initiative and enthusiasm.

Extensive computing experience and a degree or equivalent qualification are required. Training in the particular operating environment will be available.

Salary within the range £5712-£6774 plus current self-financing productivity payment and the benefits normally associated with a large progressive organisation.

Application forms, quoting ref: OLI/330 from Margaret Harrison, Personnel Assistant, On Line Inspection, PO Box 1LH Killingworth, Newcastle-upon-Tyne. Tel: Newcastle 684828 ext. 380.

BRITISH GAS

Computer Operators

LONDON SE1

The Central Electricity Generating Board's South Eastern Regional Headquarters have vacancies for a Senior Operator and an Operator at their Bankside House installation. The South Eastern Region's computers are used for a wide variety of applications based on Batch, MOP, RJE and TP Services. Communication links to major Power Stations and Grid Control Centres form a large network throughout the Region.

OPERATOR

An Operator is required for operating computer equipment including a 1903T mainframe, 7905 communications processor and a GCS 2100. Applicants should have a good general education to 'O' level standard (or equivalent) and some computer experience.

The salary will be within a scale rising from £3,585-£4,800 according to age and experience. Vacancy No. 1092/79/CW.

SENIOR OPERATOR

A Senior Operator is required to operate various equipment including an ICL 1903T, ICL 7905 communications processor and a GCS 2100. The Senior Operator deputises for the Shift Leader when absent, and is expected to work with a minimum of supervision at all times. A good general education and at least one years experience on ICL equipment/George 3 is essential, as is the ability to lead a shift when required. The salary will be within a scale rising from £4,595 to £5,390 according to age and experience. Vacancy No. 1093/79/CW.

These positions entail two shift working from Monday to Friday with day shifts on a Saturday and Sunday.

Applications quoting the appropriate Vacancy Number and giving full details should be forwarded to The Personnel Officer (Recruitment), CEGB, Bankside House, Sumner Street, London SE1 to arrive by 8 May 1979.

Central Electricity Generating Board
SE Region

GUINNESS is good for an OPERATIONS MANAGER too!

The best selling beer in Britain today is Guinness. Product quality, expert marketing and hard work contribute to this success, but one of the most essential departments is the Data Processing area located in West London.

If you are experienced in computer operations management now is the chance for you to add your talents to the existing Data Processing Department. We would expect you to be at least 28 years old with a proven track record of man management, coupled with experience of IBM mainframes and key to disk data preparation.

Look why Guinness would be good for you:—

- IBM 4341 mainframe to be installed next year
- Salary from £8,000, depending on age and experience
- Profit Share
- Flexi-time
- Non-contributory pension
- FIVE weeks holiday
- Relocation Expenses
- Free lunches
- Extensive on-site sport facilities including squash courts

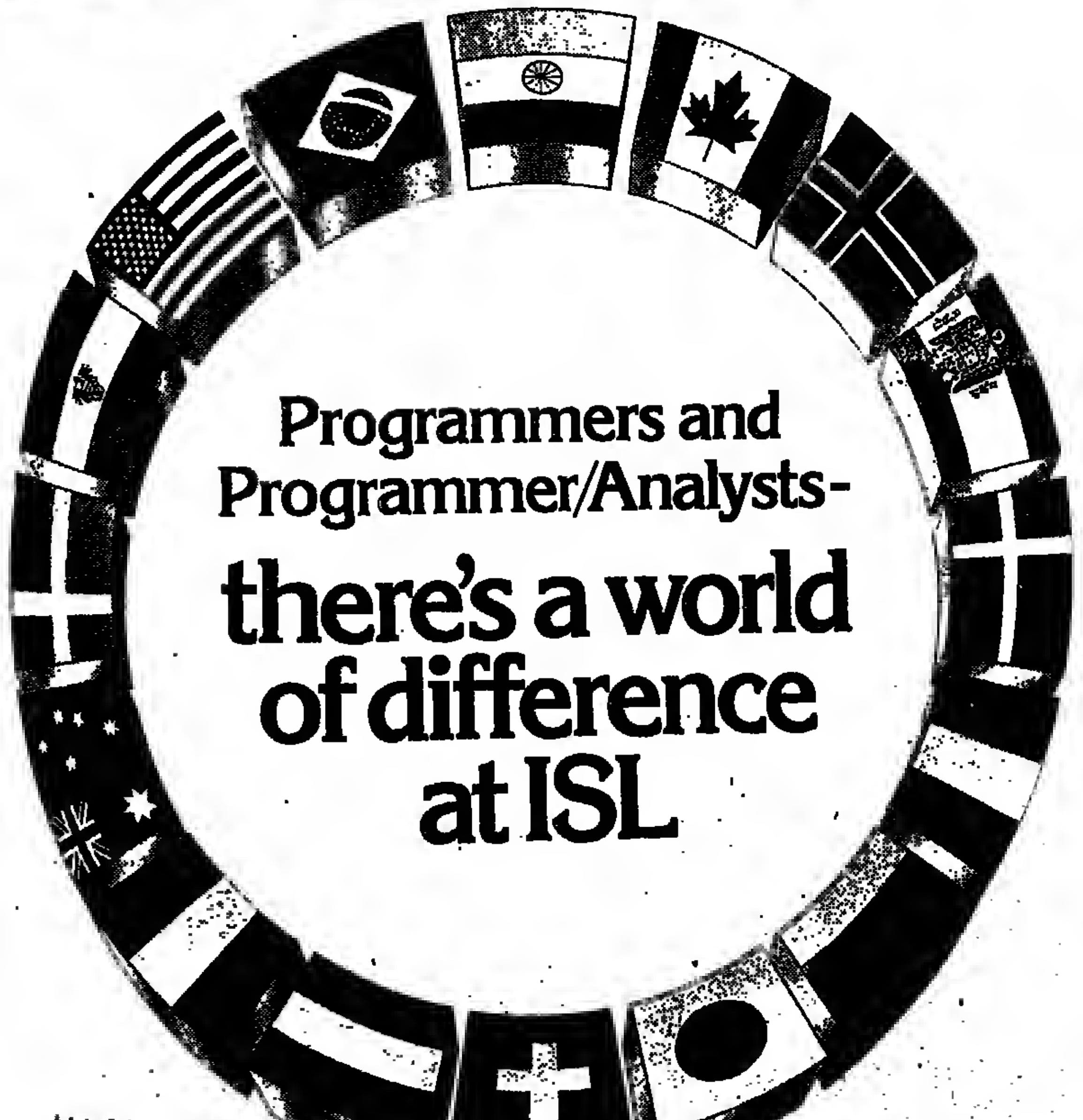
The current ICL 1900 equipment is being replaced next year by an IBM 4341 mainframe. In addition, paper tape input is to be replaced by a key to disk system using a Data General Nova.

The successful applicant will have a staff of twenty and will be responsible for the above developments which will take Guinness' data processing into the 1980's.

Capp Associates have been retained to advise on this appointment, therefore please contact REX SCOONES at Capp Associates Croydon office for an application form.

Positions open to male & female applicants, please telephone (24 hour service) for initial discussion or write to address below QUOTE REF CW 126-9S

COMPUTER AND PROFESSIONAL PERSONNEL CONSULTANTS **CAPP ASSOCIATES** LONDON AND MANCHESTER — Computing Services Association — **01-686 9693** A M P HOUSE DINGWALL RD CROYDON CR9 2AU



Programmers and Programmer/Analysts- there's a world of difference at ISL

A lot of the difference is centred around our international role. IBM Information Services Limited helps IBM's business run smoothly in over 20 countries, backed by one of the largest and most advanced DP installations in Europe.

We process a large part of the company's European order scheduling information and also provide online services and data banks on a world-wide basis by means of direct teleprocessing lines.

As one of our Programmers or Programmer/Analysts you'd be at the heart of this operation in contact with overseas IBM locations, helping design, develop, install and maintain international applications systems and on occasions travelling abroad to meet and help your colleagues on the spot.

We are updating and extending both our hardware and software capabilities and this continued expansion gives plenty of scope for diversifications and progression.

Right now, we're looking for determined men and women with 1-3 years programming experience, a proven interest in applications, and analytical minds. PL/1 would be an advantage but is by no means essential—we can always include it in your training.

We offer generous relocation expenses to our new headquarters in this attractive part of the South Coast, which has outstanding recreational and social facilities.

Salaries are very competitive and IBM's employee benefits package is acknowledged to be one of the best in industry today.

Interested? Then write now with full details about yourself or, if you'd prefer, telephone for an application form to John Mann, Personnel Officer, IBM Information Services Ltd., PO Box 39, North Harbour, Portsmouth PO6 3AA (Tel: 07018 21044 Ext. 3624) quoting ref: CW/939760.

IBM Information Services Limited

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Principal A. K. Barnard, BSc, PhD, CChem, FRIC

Department of Science

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The post will involve the teaching of GCE A level, City and Guilds 746 and 747 Data Processing experience is essential.

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Applications should be returned within two weeks of the appearance of this advertisement.

Relocation assistance available in approved cases.

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Contract or permanent for **May/June** start for **a months + assignment with our client in Slough,** developing **on-line sales order processing system within manufacturing** environment. Training in IMS, DB/DC techniques will be given.

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We are seeking technical computing staff at all levels with a lively interest in REAL-TIME COMPUTING and the application of MICRO and MINI COMPUTERS to industrial processes.

These vacancies offer a first class opportunity for personal advancement in a growing organisation.

LONDON Our London office is situated in the heart of the West End within easy reach of mainline stations.

MANCHESTER The Manchester office is located on the southern fringes of Manchester with access to rural Cheshire and Derbyshire.

For all these positions salaries, benefits and conditions will be highly competitive for the computer industry. Relocation costs may be met where appropriate.

We would like to meet people interested in these posts at:—

THE ALBANY HOTEL
SMALLBROOK, QUEENSWAY, BIRMINGHAM 5
(Nr. New St. Station)
021-643 8171
TUESDAY 1st MAY
between 10.00 a.m. and 8.00 p.m.

If you are unable to attend but are interested in these positions please write or phone:—

Alan Taylor, Personnel Manager, **SPL International,** 12/14 Windmill Street, London, W1P 1HF. 01-636 7833.

Nigel Cockle, Operations Director, **SPL International,** Battersea House, Battersea Road, Heaton Mersey, Stockport. 061-442 9552.

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To apply you should be a graduate with at least two years experience of programming, some knowledge of systems analysis and computer operations.

Our client offers a benefits package in line with other major organisations, including generous relocation assistance, if required. Your planned training will be comprehensive and career prospects are excellent.

For more information please telephone or write to Christine Wood quoting Ref. 2191.

Lloyd Chapman Associates

123, New Bond Street London W1Y 0HR 01-408 1670

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- Normal hours, and all work on site in the West End.
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Our clients are a major bureau installation, using COBOL. Software Programmers should have had experience in a software support role, using ANY LANGUAGE on ANY HARDWARE. Applications Programmers should have had at least 1½ years' sound programming experience, preferably using COBOL, but if you have used another language, OUR CLIENTS WILL RETRAIN YOU IN COBOL.

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If you qualify for this scheme, very substantial finance and management facilities will be placed at your disposal for only a nominal capital investment.

High fliers contact us now at Box 1009, Computer Weekly.

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(Post No. 448)

Post involves teaching on MSc. BSc (Hons) and HND courses in Computing. Recent practical experience in Systems Design and Implementation is essential

SALARY £4101-£7066 (bar) £7572

Further details and application form available from Staffing Officer, Leicester Polytechnic, P.O. Box 143, Leicester LE1 9BH Tel (0533) 50181 Ext 2303

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(University of London)

COMPUTER SCIENCE RESEARCH

Applications are invited from potential research students (full-time and part-time) with a good first degree in Computer Science or related subject. Research areas are Distributed Computing (Data Flow — including programming methodology, language definition and implementation, computer architecture) and Processor design and emulation

Write or phone (01-435-7141) for an interview to Dr Peter Osmon, Computer Science Department, Westfield College, Kidderpore Avenue, London, NW3 7ST.

STRATHCLYDE REGIONAL COUNCIL

GLASGOW Sub-Regional

COMPUTER SERVICES DEPARTMENT

SENIOR PROGRAMMER

FORTRAN

Hannah House, Anderston Cross Centre, Glasgow
Salary Scale — APIII/IV — £4358-£5403*

The Department of Computer Services provides time sharing facilities and supports a large number of technical staff within the Region. Engineers, Architects, Statisticians and many other professional users have access to the Authority's large computers from a variety of terminals including graphical display units and plotters. A Project Team within the Computer Services Department provides software support for these users, implementing and amending packages and extending these where necessary. The packages supported include engineering design, statistical analysis, school time-table production, network analysis and interactive graphics. The wide variety of users offers scope for applicants with relevant FORTRAN experience to broaden that experience in a stimulating and demanding environment.
*This salary range is inclusive of supplements

Application forms may be obtained from The Assistant Director of Manpower Services, 21 Gordon Street, Glasgow G1 3PB, to whom completed forms, quoting Ref. G794, should be returned by May 3rd, 1979.

R. M. O. McCulloch
Director of Manpower Services

Computer Programmer

Further your commercial systems experience.

Havant

Vinatex Limited require a Programmer to work on the development and maintenance of commercial systems on our in-house PDP 1134. Occasional analytical work may be required. Preferably the candidate should be experienced in Basic+ under RSTS/E. But candidates prepared to retrain will be considered.

The salary will be negotiated with the successful candidate but is likely to be between £5000 and £6000 p.a.

Attractive conditions of employment, subsidised canteen, flexible working hours, sports and social club, plus 50% contribution to BUPA are offered.

If you are interested in gaining experience in commercial systems then Vinatex could give you the opportunity.

Please ring or write for an application form to: Adrian McCurry, Personnel Officer.

VINATEX
VINATEX LIMITED, New Lane, Havant, Hants. Telephone Havant (0705) 486350.

Computer Programmer

£5,000-£6,500 p.a.

We are gearing up for the next generation of mini computers as part of a management commitment to integrate computers fully into all aspects of our world wide wool promotional activities. The re-equipment programme using the HP 3000 series will be international and the first phase is likely to involve our operations in the UK, Germany, USA and Japan.

To tackle the extra work generated we need an experienced programmer to join our central software team, which provides a complete and varied service for our international computing needs from our London Headquarters.

You could well be a graduate with a couple of years relevant experience or have 'A' levels and have been around the computer world rather longer. You should have experience in using BASIC for business applications and a good record of successful projects.

The initial salary will be up to £5,300 per annum with progress through the above range linked to job performance. Other benefits are in line with good modern practice.

We're really interested in hearing from you.

Please write to, or telephone:
Personnel Manager
International Wool Secretariat
Wool House, Carlton Gardens
LONDON SW1Y 5AE
Tel: 01-930 7300 Ext [illegible]

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Having recently installed a computer for the first time—an ICL System Ten—a management information and accounting system is being developed in conjunction with Dataskil, the first stage of which is currently being implemented. This development could include involvement with word processing systems, further distribution of the existing systems etc.

It is preferable that applicants (probably in their mid 20's to early 30's) should have experience of small systems and a knowledge of insurance or reinsurance would be a distinct advantage. It would be useful to be acquainted with basic O & M techniques.

The salary will reflect the importance of the position and other attractive benefits will include the provision of a company car at an early date.

This is an ideal appointment for a person capable of working on his/her own initiative, and wishing to become an integral part of a professional management team.

If you feel you have the professional expertise and ambition to fill this position please write enclosing curriculum vitae to Michael Simmonds, FCA, Greig Fester Limited, Regis House, 43/46, King William Street, London EC4R 9AD.

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Please phone for immediate discussion/interview in London or Manchester. Ref. No. JFEG-10

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Telephone 061 236 7026/7/8.

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Computer Operations Manager

New Computer Installation

Midlands **to c.£8,000, and Car**

Our client, a major organisation with a turnover approaching £30m and an acknowledged high reputation in the UK and worldwide for a range of unique products, is embarked on a long term plan to develop significant new systems utilising database and real time processing, via a newly acquired medium scale mainframe and on-line remote terminal network.

You are at least 28 years of age and have been in DP for about 8 years, half of which will have been spent in computer operations, where you will have gained practical experience in organising and supervising machine room and ancillary functions. This experience should have been obtained on a medium scale third generation machine, preferably of IBM, ICL, or Univac manufacture. Whilst some exposure to an on-line working environment would be quite advantageous, the prime attributes are the abilities to organise, drive and control a compact operations department, and communicate effectively with users and technical staff.

Reporting to the Data Processing Manager, the appointee will receive an excellent starting salary, a company supported car, appropriate relocation expenses, attractive benefits, and significant career and promotion prospects in an expanding DP division.

TO APPLY
Please send a CV, or a letter listing professional career history to date, including hardware and software exposure, current employer, position and salary, or telephone for an application form, to ANTHONY SPURR, Executive Selection Division, at the address below, quoting reference number G715. Applications are invited from either sex.

BIS Applied Systems Limited
York House, 199 Westminster Bridge Road
London SE1 7UT
Telephone 01 633 0866

BIS Applied Systems

Datasolve International

OPERATORS

This could be the last bit of filling in you'll ever do.

Please write in ballpoint, using block capitals

Surname ________ Forenames ________
Address ________
____
Tel. Home ________ Office (discretion will be used) ________
Age ________ Place of Birth ________ Car? ________
Are you prepared to relocate? ________ UK/Abroad (delete)

Experience. Place no. of yrs. in box e.g. IBM 370 ☐

Job Titles	OPERATOR	☐	CHIEF OPERATOR	☐
	SENIOR OP.	☐	SUPERVISOR/MANAGER	☐
Machines: Please specify model			**Operating Systems**	
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ICL		☐	OS	☐
Honeywell		☐	George (specify)	☐
Univac		☐	POWER*/HASP*/GRASP*	☐
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Other		☐	*Delete where inapplicable.	

Position sought: ________
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Minimum salary £ ________ Notice required/Date available ________

Cut out the whole advertisement and post to the address below.

Knight Computer Services Ltd.,
14 Old Park Lane, London W1Y 4NL.

Staff Services Division of BOC Datasolve Group and a member of Computing Services Association.

Knight

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Contract Spot

REAL TIME PROGRAMMERS
(Coral or similar)

North London and Essex

Phone Paula on 01-946 4424
Meteor Computer Consultants Ltd.

PROGRAMMERS

A lucrative and secure future in Western Germany

We are: The leading bakery product manufacturer and producer in Germany and are based in Pfungstadt (between Frankfurt and Heidelberg).

We have: An ICL 1903 A, 96 K, 4 EDS60, 4 MT, 2 printers, document reader and plan to change to new generation equipment by the start of 1981.

We need: Programmer(s) who can handle ICL-equipment, GEORGE TPS and COBOL and who is willing to learn German.

We offer: Salary of around £10,000 p.a. with excellent prospects as well as other fringe benefits. Relocation expenses are, of course, being taken care of by the company.

If you are interested please contact:

Wilhelm Weber GmbH Backwaren
Ostendstr 8
6102 Pfungstadt
West Germany
Phone number: 01049-6157-3061

Sending a CV and giving dates and / or times preferred for interview, which will take place in May 1979, in London.

CITY OF LONDON

Technical Analyst/ Programmers

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Salary up to £6,500

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These are within groups working on novel computer applications for the Engineering, Offshore and Shipbuilding Industries. Our activities include the development and support of advanced computer systems in the following areas:-
Finite Elements • Hydrodynamics and Heat Transfer • Computer Graphics
Structural Engineering • Computer Aided Design
Numerical Analysis • Picture Processing

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Applications are invited from Honours Graduates with a good knowledge of computer techniques and mathematics.
Please telephone (01) 709-9166, Ext. 506 or write for an application form to the Recruitment and Staff Relations Officer (marking the envelope 'Confidential'), giving at least two dates of availability for interview.

Lloyd's Register of Shipping
71 Fenchurch Street, London EC3M 4BS

COMPUTER WEEKLY EDUCATION SUPPLEMENT MAY 10 ISSUE

The 1979 Computer Weekly Education Supplement will be published with issue dated May 10, and will take a close look at developments in this area and the many training facilities available for DP Personnel.

The rapid growth of the computer industry calls for a continuing army of fully trained software personnel geared to cope with the challenge of new concepts and technologies that are emerging all the time. Because of the current severe staff shortage, it is now even more vital that those already employed in the industry are encouraged to seek further education, as well as those who may soon be embarking on a career in computers.

To ensure that our supplement puts forward the most authoritative viewpoints, editorial contribution from experts in this area will be included, providing readers with a greater awareness of the importance and benefits further training can bring.

Computer Weekly is the natural choice for courses advertising. Current circulation of 82,000 extends to all sectors of the industry particularly amongst systems analysts, programmers, DP Managers and operations staff.

If you have courses planned for the future, then this special Education Supplement provides a first class platform to give maximum publicity to your programme. Copy date is Friday, May 4. To reserve space phone : 01-261 8028/8097/8174.

COMPUTER WEEKLY
THE INDUSTRY NEWSPAPER FOR THE DP PROFESSIONAL

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CEGB SOUTH EASTERN REGION

Senior Systems Analyst

Vacancy No 1064/79/CW

Junior Systems Analyst

Vacancy No 1065/79/CW

We are seeking two highly motivated individuals to help us meet the challenge of several large new projects. The posts will be based at our London headquarters but significant travel to power stations in the north Kent area may be involved.
The main features of these excellent opportunities are:

APPLICATIONS
- Power station work planning and plant management
- Integrated materials management systems
- New accounting and budgetary control systems

EQUIPMENT
- An ICL 2960 will replace our current mainframe in April 1980
- Datapoint intelligent terminal systems are used for remote data collection and job entry
- Minicomputers for on-line distributed systems at a number of power stations are currently being considered.

BENEFITS
- More than 5 weeks holiday
- Starting salary on appointment is likely to fall between £4630-£5555 for the junior post and £5720-£7570 for the senior post
- Contributory pension, free accident insurance
- Staff discounts on electrical goods
- Sell Financing Bonus from £10.11 to £17.63 per month

Candidates should preferably have COBOL programming experience plus additional significant systems analysis experience in the case of the senior post.
Please write quoting appropriate vacancy number, giving brief details of qualifications and experience, to the Personnel Officer (Recruitment), CEGB South Eastern Region, Benkside House, Sumner Street, London SE1 9JU to arrive by 4 May 1979, or ring Dave Norris on 01-261 2322.

Central Electricity Generating Board
SE Region

DUBLIN

DP MANAGER PDP 11/34 start salary £7500-£9500 according to experience

THIS IS A KEY POSITION with a highly successful Irish Company which has identified the importance of information handling to its further profitable growth. This Company concerned is one of the leaders in its field and enjoys a continuing expansion rate of more than 30% per annum. A PDP 11/34 with 128K of memory and local VDUs has been successfully installed, using external assistance, and an experienced DP professional is now to be recruited to take responsibility for the DP function. Initially he or she will personally undertake any systems and programming work which may be required but expansion of the business is likely to lead in the future to a corresponding growth of the DP Dept. A new market analysis database is planned for the near future to supplement the existing suites of programs.

RESPONSIBILITIES
The successful applicant will work closely with top management, the following being the primary responsibilities of the post.
(1) Ensuring that the installation runs effectively
(2) Scheduling and planning operational work
(3) Maintaining and enhancing existing programs
(4) Developing and implementing new systems, as appropriate
(5) Planning and undertaking further development of DP facilities

REQUIRED PROFILE
(1) Good experience of (a) Systems development and implementation
(b) Programming using BASIC +
(2) Knowledge of the RSTS operating system
(3) A sound personality and a good level of initiative

BY NEGOTIATION. THE REMUNERATION PACKAGE MAY BE ENHANCED WITH FURTHER ATTRACTIVE BENEFITS

Please apply by telephone, if possible, as there may be postal delays

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Yes, and one with a different approach. We specialise purely in Permanent Computer Recruitment and will devote all our time and effort to locating the most suitable permanent position for you. Where necessary we will meet you out of office hours in your home town.

We will be in regular contact with every Computer User, Services Organisation and Manufacturer in the U.K. north of Birmingham. If you live in this area we will be able to advise on where your best career moves lie. We therefore invite Computer professionals to contact IAN BACON, our Northern Branch Manager, on **061-834 5105** for an informal discussion of their career prospects or to complete and return the attached coupon.

IPP.(North) FREEPOST MANCHESTER M2 8BU

Name .....

Address .....

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Tel. No. Home .....

Tel No. Office .....

Current Title ..... Current Salary .....

IPP **Information Processing People (North)**
Suite 59/60, Royal Exchange Buildings, Croft Street, Manchester
Telephone: 061-834 5105 (PBX) 24 hrs. Telex: 261298

PROJECT LEADER
Salary up to £6060

To lead teams of programmers-systems analysts on full range of Council's computer activities. Candidates must be experienced COBOL programmers with up to two years systems analyst experience. Job description available.

SYSTEMS ANALYST/PROGRAMMER
Salary up to £5073

To work in project team initially on police command and control systems using dual specialist equipment backed by main frame, developing and maintaining communication and general systems employing CORAL and COBOL. The post will allow contact with specialised techniques and the occupant will be able to widen experience to the limits of ability.

The Council's computer equipment consists of a Honeywell level 66/10 and level 6 processors.

Application forms and further details for the above posts are available from the Personnel Officer at County Hall, Bedford, to whom applications should be returned by: May 10, 1979. Both posts are open to men and women.

Bedfordshire
COUNTY COUNCIL

THE POLYTECHNIC OF WALES
Polytechnig Cymru

Applications are invited for the following posts

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

1. PRINCIPAL LECTURER IN COMPUTER SCIENCE

Applicants should possess appropriate academic qualifications together with substantial industrial experience in Software Engineering

2. SENIOR LECTURER/ LECTURER II IN COMPUTER SCIENCE

Applicants should possess appropriate academic qualifications together with substantial commercial experience in Data Processing and Systems Analysis

3. SENIOR LECTURER/ LECTURER II IN MATHEMATICS

Applicants should possess a good Honours Degree in Mathematics and preferably a higher degree together with substantial industrial experience.

Salaries:
Principal Lecturer — £7074-£7818 Bar - £8844
Senior Lecturer/Lecturer II — £4161-£7068 Bar - £7572

Subject to review from 1st April 1979

Application forms and further particulars are available from

Personnel Officer
The Polytechnic of Wales
Pontypridd
Mid Glamorgan CF37 1DL
Telephone: (0443) 405133

Closing date Monday, 14th May, 1979

MACRO-11 PROGRAMMER

LOCATION: **LONDON** START SALARY c. **£8,000 p.a.**

3% MORTGAGE . . . LOW INTEREST LOANS . . . RELOCATION EXPENSES WHERE APPROPRIATE . . . UNRIVALLED ADVANCEMENT OPPORTUNITIES . . .

Our client, one of the world's largest banking corporations, is seeking to recruit a programmer with two or three years' solid experience of MACRO-11. The successful candidate will be working on advanced real-time projects utilising a network of DEC PDP-11 computers, and a good knowledge of teleprocessing is therefore a distinct advantage.

This is an exceptional opportunity offering benefits which, in addition to those quoted above, include four weeks' annual holiday (rising to five weeks) and free lunches in the bank's own luxury restaurant.

If you would like to be considered, please call Mike Doran on 01-278 5634 or, if you prefer, write to him at the address below.

macro logic
macrologic management services limited
Acorn House 314-320 Grays Inn Road London WC1
recruitment consultants
01-278 5634

PROGRAMMERS

Move into the Oil world and join the team that takes you ahead.

Texaco is one of the most progressive of the world's major Oil companies and offers an excellent environment for those who wish to develop their careers and are not afraid of hard work.

Here, at our U.K. Headquarters in Knightsbridge, we're expanding our Computer Services function. We are actively involved in an international systems network and have a 370/125 which acts as a work station to the 370/158 MP system in Hamburg operating under MVS.

We are currently developing a number of IMS database applications using on-line program development via TSO and will shortly commence development of a large distributed processing project using Datapoint equipment.

In order to support these projects we require:

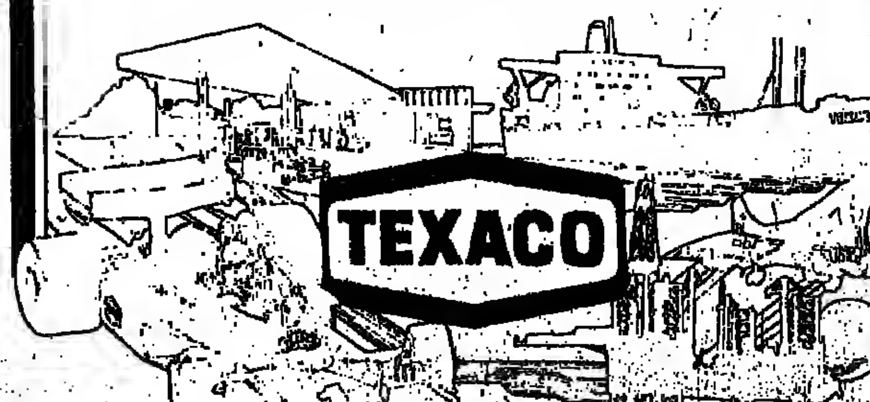
SENIOR PROGRAMMER (to £6,700 per annum)
Minimum 3 years COBOL

PROGRAMMER (to £5,700 per annum)
Minimum 1 year COBOL

If you are self-motivated, interested in keeping abreast of trends and are seeking a valid career move,

Telephone Rob Herson or Ian Gregson at 01-584 5000 between 10.00 a.m. and 4.00 p.m. for full details and to arrange a convenient time for an informal interview.

If you prefer to write, simply send a full career history, in confidence, to:
Mrs. U. Colburn, Personnel Department, Texaco Ltd., 1, Knightsbridge Green, London SW1X 7QJ.



TEXACO

Compute your way to success with Michelin

By the time you've read this advertisement, it'll be out of date. And for ambitious computer professionals with a strong interest in technical development, that represents major opportunities.

We're the world's largest and most progressive radial tyre manufacturer. Based in Stoke-on-Trent, we have five other U.K. factories, a London office and a large number of depots and other installations throughout the country. In addition, we must maintain constant links with our European sites.

It's plain, therefore, that we need our sophisticated computer network — a network that's growing by leaps and bounds. Already we have Honeywell levels 6 and 66, ICL 2904, Datapoint 5500's, 2200's and 1134's, over 50 real-time terminals and an expanding range of other equipment.

Right now we need a number of experienced men or women to grow with us. We're looking for Systems Analysts, Systems Designers, Systems Programmers and Operations Planners. In all cases, you should be aged 25-40 and have several years experience of large, advanced computer systems, on real-time and batch applications.

Salaries and benefits
Initial salaries for these appointments range from £6000. A wide range of benefits includes generous holidays, excellent pension/life assurance arrangements, superb sports and social facilities and realistic relocation expenses where appropriate.

Career development
Each of these posts represents a real opportunity for career progression into our management structure — and this need not be limited to the computer function.

Write today with brief career details to John Sellers, Staff Recruitment Manager (S), Michelin Tyre Company Limited, Stoke-on-Trent ST4 4EY or phone (0782) 48101 extension 173 for an application form and further information.

Switch to Michelin

RPG experience? Cobol? Both?
Want to transfer to System 38?

Top salaries offered for good, or potentially good, systems/programmers for new **IBM INSTALLATION.**

Quaker is a multi-national food, pet food, speciality chemicals and toys manufacturer, and has ordered **EIGHT** system 34 and system 38 computers for its **EUROPEAN BUSINESS.**

First of the system 38's is scheduled as replacement for installed equipment at its UK Grocery HO, West of London.

"ON LINE" BUSINESS PACKAGES will be developed for installation at Quaker Grocery locations throughout Europe.

A systems/programming group is being set up to develop these new database systems.

Interested?
Call or write to Diane Collier, Personnel Officer, Quaker Oats Limited, Bridge Road, Southall, Middx.
Tel: 01-574 2388 ext. 443.

QUAKER

FORTRAN PROGRAMMER ANALYST

Looking for a chance to get into commercial systems development?

It's not often that an opportunity arises for you to apply your FORTRAN experience in a commercial environment. But just such an occasion has arisen.

A £multi-million company in the film processing business has recently installed a PRIME 400 computer with a large number of DDE screens to service their laboratories in the UK and on the Continent.

With initial mail order and sales ledger systems now complete, the company is at present setting up its own Systems and Programming Department and now requires an enthusiastic, but essentially mature minded, Programmer Analyst to head up the new team. A man or woman with at least two years' FORTRAN programming experience.

The beauty of this job is that it will be almost entirely development work, both on existing systems and on new nominal and bought ledger commercial systems, so it should provide you with plenty of interest.

In a pleasant Thamesside Berkshire location, the company is offering a salary of up to £6500 with free BUPA, subsidised staff restaurant, Christmas bonus and annual negotiable salary review. There are other perks too and they tell us that they have a really friendly team, so don't miss this opportunity.

Phone or write to Andy [illegible] for an application form.

up to £6500-Berkshire

Knight
Knight Computer Services Limited,
14 Old Park Lane, London W1Y 4NL.
Staff Services Division of BOC Datasolve Group and a member of Computing Services Association.

01-491 4706

IBM OS SHIFT SUPERVISOR

CITY **£5900**

Four years' operating experience is a requirement for this City based company running an IBM 370 under OS VS 1. Applicants who should be conversant with OS JCL and Utilities, will benefit from the planned upgrade to New Range equipment. In addition to an excellent salary, a subsidised MORTGAGE is offered.

ICL SENIOR OPS c£4800
ICL OPERATORS c£4500

Excellent opportunities exist for Ops with a minimum of 12 months' [illegible] exp. to work on ICL 1900 & New Range 2900 equipment. We have a number of vacancies in Central & West London offering rapid career progression and job satisfaction to ambitious, self-motivated young people.

24-hour answering service

Computer Two Thousand
Personnel Consultants LIC. No SE(A) 463
217-218 Tottenham Court Road
London W1P 9AF
Telephone: 01-637 3265/6

IBM DOS SENIOR OP

MIDDX. **£5000**

Major manufacturing company located W. London/Middx. borders, requires a Senior Op with a minimum of 2 years' DOS VS experience. The hardware comprises a mid-range IBM 370 under DOS, VS, POWER VS & CICS, run on a 2-shift system. Prospects into Technical Support. 5 weeks holidays.

PDP OPERATOR

CITY **c£4500+**

Our client, a major banking organisation, requires an Operator with a minimum of 9 months PDP experience. The installation consists of twin PDP 11 machines run on a 2-shift system. Excellent benefits include subsidised MORTGAGE, 75p LV's per day, season ticket loans, free life assurance and pension schemes and mileage allowance.

24-hour answering service

Computer Two Thousand
Personnel Consultants LIC. No SE(A) 463
217-218 Tottenham Court Road
London W1P 9AF
Telephone: 01-637 3265/6

Our client is an autonomous company which employs about 230 people. They manufacture, assemble and write systems + application software in a specialist area based upon DEC equipment.

ASSEMBLER PROGRAMMERS

To £7K (NEG)

As a technical programmer, you will be part of a team headed by a project leader developing assembler written applications for 'Process control' systems. These specialised projects will result in client contact and travel.

Candidates should be young, responsible and educated to 'A' level standard with 18+ months assembler programming experience, preferably in a research or scientific area, although applicants with commercial experience in a MICRO/MINI environment will be considered.

The benefits of working with this exciting real-time company are a subsidised canteen, voluntary paid overtime, a sports and social club, 4 weeks holidays, the opportunity to travel, together with relocation expenses where appropriate and a good negotiable salary.

In the first instance, please telephone for an application form or send career details to C2000. All applications will be dealt with promptly and in the strictest confidence.

24-hour answering service

Computer Two Thousand
Personnel Consultants LIC. No SE(A) 463
217-218 Tottenham Court Road
London W1P 9AF
Telephone: 01-637 3265/6

Our client, who employs hundreds of people world wide is the world's largest independent supplier of systems software

TECHNICAL SUPPORT

UK & EUROPE **£HIGH**

As a key person you will be assigned a territory and will be responsible for installation and maintenance of their present and new range of software products, training user personnel, problem diagnosis, product presentations and evaluation of competitive software packages.

The position requires a minimum of 3 yrs. IBM OS or DOS VS knowledge as an operator or programmer together with working experience of JCL, Assembler, Core dumps and hopefully some system generation. You will be able to project an image of efficiency and enthusiasm needed by this marketing company.

A car, expenses, above market salary together with pension and insurance schemes, adds up to a comprehensive package.

24-hour answering service

Computer Two Thousand
Personnel Consultants LIC. No SE(A) 463
217-218 Tottenham Court Road
London W1P 9AF
Telephone: 01-637 3265/6

OPS/SEN OPS/SHIFT LDRs

3031/MVS	3-shift	C. Lon.	£6000
370/OS	2-shift	C. Lon.	£5000+
370/OS	3-shift	Herts.	c£5000
370/OS	3-shift	Croydon	£4800
370/DOS	3-shift	City	£4500
370/DOS	2-shift	Middx.	£4500
370/OS	3-shift	Beds.	£4400
2904/Ex 2	3-shift	City	c£5000
2950/VME	2-shift	Essex/C. Lon.	c£4750
1900/G2	3-shift	W. Lon.	£4500

'DAYS - ONLY' POSITIONS

370/OS	Control Supervisor	C. Lon.	£6500
370/DOS	Tech. Supp.	[illegible]	[illegible]
370/DOS	Tech. Supp.	Surrey	£5000
1900/G2	Data Control	W. Lon.	c£4200

24-hour answering service

Computer Two Thousand
Personnel Consultants LIC. No SE(A) 463
217-218 Tottenham Court Road
London W1P 9AF
Telephone: 01-637 3265/6

The London Hospital (Whitechapel)

DATA CONTROL SUPERVISOR

SALARY £3226-£4775*

A Data Control Supervisor is required at this busy teaching hospital to set up and control work throughput on the mainframe and to liaise with users regarding their work requirements. The person appointed will supervise the work of the Tape Librarian/Data Control Assistant.

A methodical approach, a flair for figures and an ability to communicate with people are essential to meet the needs of this interesting post.

Excellent facilities include: sports and social club, staff restaurant, easy access to central London. Temporary single accommodation may be available.

For further information, phone Sylvia Lyons or Les King up to 8.00 p.m. each evening, or write, with brief career details to:

Modem Computer Services Limited, FREEPOST, London WC2N 5BR. 01-839 3351.

*Including London Weighting

Freelance Contracts **MODEM** Permanent Positions

Data Processing Staff Consultants

The Hatfield Polytechnic

Senior Consultants
Consultants
Senior Programmers

Salaries in PO'D' to PO'G' range
£5,647-£7,906 inclusive

We are expanding our senior staff establishment to obtain maximum benefit from our three new major timesharing systems supporting over 160 simultaneous user terminals. Hardware includes a 512K word DECsystem-10, a 512K word DECsystem-20, a 128K word PDP 11/70, 1130 Mbytes on disc store and a range of graphics facilities.

The persons appointed will take leading parts in:
SYSTEMS DEVELOPMENT on operating system and network software
APPLICATIONS DEVELOPMENT in a variety of fields including data bases, information retrieval, microprocessors, statistical analysis and general teaching packages
USER SUPPORT for the advisory, information, publications and user liaison services

The Computer Centre had recently moved to a spacious new building providing excellent working conditions for staff and computer users.

Applications received in response to our recent advertisement will be automatically considered.

Further details from the Staffing Office, The Hatfield Polytechnic, P.O. Box 109, Hatfield, Herts AL10 9AB or Telephone Dr. M. O. Seyers on Hatfield 68100 extension 502.
Please quote reference: 175
Closing date 4 May.

NORTH EAST LONDON POLYTECHNIC

TWO SENIOR OPERATORS (T3/4)

BARKING PRECINCT

Applications are invited for the above posts to work within the Operations Group in the Computer Centre. The duties include controlling the flow of work through the computers, interpreting and acting upon messages displayed by the operating systems, monitoring equipment for possible malfunction, and assisting in preparation of shift records.

Applicants should have attained at least GCE 'O' level standard education and have experience of ICL 1900 series computer.

One post covers two shifts — working between the hours of 8.00 a.m. to 11.00 p.m., the other post covers the night shift during the hours of 11.15 p.m. to 8.15 a.m.

The inclusive annual salary, including night shift payment, ranges from £4,882 per annum to £5,982 inclusive according to age, qualifications and experience. For the day shift workers the scale is from £4,510.50 to £5,536.50 per annum inclusive according to age, qualifications and experience.

For further information and application form please contact the Personnel Office, North East London Polytechnic, 108 The Grove, Stratford, E.15. Telephone 01-555 0811 ext. 32, quoting reference number A5/79. Closing date: May 11, 1979.

SYSTEMS MANAGER

Godfrey Davis (London) Ltd.

We are planning to install at Alperton, Middlesex, a Hewlett Packard 3000 (III) with image data-base during the current year and we require a Hands-On System Manager to be involved with the packages and assist in the set up of the Data Base structure.

The initial systems will be custom written by a software house and phase 2 and 3 will include the connection of remote terminals to our other main dealerships.

We are looking for an enthusiastic and competent computer professional with good cobol and base experience to be directly responsible to the Group Computer Services Manager.

For further particulars ring Mr. J. S. Cooke on 01-950 2759

Godfrey Davis

EAST ANGLIAN REGIONAL HEALTH AUTHORITY

Computer Unit — New Addenbrookes Hospital

Systems Designers or Designer/Programmers

Salary Scale. £4421-£5326 per annum

Required to work on the further development of on-line patient administration systems, currently based on a Sigma 6 computer using integrated database and transaction processing techniques. You will also redevelop these systems for other hospitals in the Region using mini computers.

Candidates should have a solid background in computing coupled with a good educational standard.

The hospital is situated on the southern boundary of Cambridge in pleasant surroundings. It has its own shops, and sports and recreation centre. Although the posts are based at Addenbrookes, some travelling to other hospitals within the Region may be necessary.

Application form and further details available from the Regional Personnel Officer, Union Lane, Cambridge CB4 1RF (Tel: Cambridge 61212, ext. 325).
Closing date: 14 May, 1979.

As a result of the acquisition of a new Honeywell Level 64 computer, Franklin Mint Ltd., the U.K. division of the world's largest private mint, are seeking to recruit a

COMPUTER OPERATOR

£4,640 (including shift allowance)

Applicants should have a minimum of 12 months' experience operating a Honeywell Level 64, operating under GCOS.

In addition to the salary, we operate a non-contributory pension scheme, free life and permanent health assurances, free BUPA and give L.V.s, a maximum of 20 days' holiday and a non-contractual bonus.

We will be commencing interviewing in the very near future, so if you're interested, telephone Peter Brown now on 01-697 0121 or write to him at the address below:

Franklin Mint Ltd.
138 Bromley Road
London SE6 2XG

TOTAL
Cobol Programmers
(Central London) c.£5,500 pa

Total Oil Great Britain Limited are looking for two Cobol Programmers with over two and a half years' experience to work in our Central London Head Office.

Our installation, a 370 125 using Cobol under DOS/VS, is likely to be upgraded to a 4341 next year, and we are seeking people who can develop to use the full potential of this new machine.

Present applications are of a general commercial/financial type and currently include comprehensive terminal based (batched) G.P. systems.

Successful applicants will be working as members of a small and successful programming pool using one of the structured programming techniques and will be expected to work to completion dates and schedules with a high rate of success.

Please telephone or write for an application form to Anne Lumgair, Total Oil Great Britain Ltd., 33 Cavendish Square, London W1M 0JE. Tel. 409-6393, ext. 281.

MMI Personnel "We care about the job you're in"

Wanted urgently!

Are you a computer programmer?

Would you like to work in Leighton Buzzard, Beds, a pretty market town on the Beds/Herts border, 40 mins from London. A well-known company (part of a famous national Group) seeks computer programmer able to run their new computer. Salary in excess of £8,000 p.a. and all the benefits associated with working for a company the size of this one.

MMI Personnel Ltd.
32 Baker Street Weybridge Surrey
Telephone: Weybridge 42372

A division of Marketing and Manpower Ltd

MMI

INSTRUCTOR–OPERATIONS TRAINING

£3734–£5244 p.a.

Barclays Bank has a vacancy for an Instructor in its Technical Training Section at Radbroke Hall near Knutsford in Cheshire.

Applications are invited from people having several years' experience operating IBM 370/158's or 168's running under OS/VS1 or OS/MVS JES2. A knowledge of JCL would be useful.

Previous instructing experience is not necessary as training will be given.

Basic salary will commence in the range £3,484–£4,994 plus an Instructors Allowance of £250 per annum. This salary is due for review in July. There is at present a productivity scheme in operation currently paying 5% of basic salary. The Bank also has a profit sharing scheme.

Other benefits include a non-contributory pension scheme, subsidised canteen and excellent sports and social facilities as well as other fringe benefits associated with working for a Bank.

Application forms may be obtained from:–

The Personnel Manager, Barclays Bank Limited, Management Services Department, Radbroke Hall, Knutsford, Cheshire, WA16 9EU, or by telephoning: Mr. B. A. Bath, Knutsford 3888 Ext. 2729.

BARCLAYS

BRIGHTON POLYTECHNIC

DEPARTMENT OF COMPUTING AND CYBERNETICS

LECTURER II/ SENIOR LECTURER

(two posts)

(Post 1) In Computer Science with particular interest in Programming Languages.

(Post 2) In Computer Science with particular interest in Databases.

Salary scales: Senior Lecturer £6,051 – £7,572
Lecturer II £4,101 – £6,558

[illegible]

FIFE REGIONAL COUNCIL
FINANCE DEPARTMENT
Computer Operations Section

HEAD OF COMPUTER OPERATIONS

Salary Grade — A.P. VII (Under Review)
Scale £5708/£7236 inc. supplement
Placing according to experience

A challenging and interesting opportunity has arisen for an experienced Head of Computer Operations within the Region's Computer Operations Section, based at the Regional Computer Centre, Glenrothes.

The position carries total responsibility for the efficient administration and control of all operations functions, including data preparation, data control, computer room and user department liaison.

The Authority presently operates an ICL 1903 A which serves the data processing needs of the Region and the three Fife District Councils. The ICL 1903 A will be replaced by an ICL 2960 in April, 1979.

Candidates should have extensive computer experience and be able to make a positive contribution to the success of data processing within the four local authorities, both in respect of the day-to-day operations and the future long term development strategy.

What has FIFE to offer you? Financial assistance to move to one of Scotland's more attractive areas and a career structure to [illegible] initiative and hard work.

Application form and Job Specification for the [illegible] Glenrothes, Fife. Tel: Glenrothes 754411, ext. [illegible] completed form should be returned not later than [illegible] Please quote ref. number 89/49/29/CW.

SYSTEMS DEVELOPMENT OUTSTANDING OPPORTUNITIES

WEST YORKSHIRE		EAST MIDLANDS	
Our clients are amongst the leading computer users in West Yorkshire and wish to recruit professional staff for the following categories:		Our client a major computer user with extensive development plans including new hardware require the following staff:	
Systems Analysts (Ref CW/79020)	c £6,500	Project Leaders (Ref CW/79024)	from £7,000
Senior Programmers (Ref CW/79021)	to £5,750	Systems Analysts (Ref CW/79025)	c £[illegible]
Analyst/Programmers (Ref CW/79022)	c £[illegible]	Senior Programmers (Ref CW/79026)	c £[illegible]
[illegible] (Ref [illegible])	[illegible]	[illegible] (Ref CW/7902[illegible])	[illegible]

These are specific opportunities which will offer the successful candidates outstanding career development.
To find out more details and to arrange confidential discussions at an early date, contact
Ivor Norton quoting the appropriate reference.

52 Shaftesbury Avenue, London [illegible]

OS COBOL
S.W. LONDON to £7000
Project Team environment
Opportunity of development work

PROGRAMMER
N. LONDON c.£5,500
Minimum 3 years ICL COBOL/RPG II.

ANALYST/ PROGRAMMER
N. LONDON to £7000
Opportunity to learn Univac hardware and development using DMS Database.

SENIOR ANALYST/ PROGRAMMER
BERKS to £6000
5 years ICL COBOL. On-line experience plus IDMS.

TEAM LEADERS
GREATER LONDON to £8500
Proven supervisory experience with a strong commercial programming background. Some systems experience would be desirable.

PROGRAMMERS SENIOR PROGRAMMERS
£5500-£6300 S.E. ENGLAND
ICL 1900 COBOL GH + development work in Project Team. 2900 exp. advantageous.

THESE ARE JUST SOME OF THE OPPORTUNITIES THAT MARCOL CAN OFFER

Interested?

Contact: DEREK ASHLEY or PENNY BAILEY **01-402 9355**

Total capability from the MARCOL Group
60 Queens Gardens, London W2 3AF. Tel: 01-402 9355 (24 hours)

CAPP ASSOCIATES group provides permanent and contract recruitment services to clients and applicants

COBOL

Programmers c.£5,250
Analyst/Programmers
S. Manchester

Variety is the spice of life!
How would you like to work for one of the most successful bureaux in the U.K.?
You will be busy and the work varied. Our client has produced standard packages for most commercial applications and custom design systems, such as production control etc., for its clients.
An up-grade to 2900 is planned and they are committed to communications — at present the hardware is ICL 1904S supported by Redifon minis.
You will be an above average programmer, perhaps with an interest in moving into systems. There are excellent career opportunities for applicants to develop their skills in a challenging environment.
The offices are modern and are situated by the M63, convenient for most parts of Lancashire and Cheshire.

CW 127-9M

LANCASHIRE

Project Leaders £7,500

A large banking organisation requires experienced IBM staff at all levels from Programmers to Project Leaders.

- **DUAL IBM 3031**
- **Unlimited development**
- **5% Fixed mortgage**
- **4 to 5 weeks holidays**
- **Totally free banking**

We want to hear from you if you would like to advance your career with a forward thinking organisation that cares about you as an individual and offers outstanding benefits . . . . .

CW 128-9M

MANCHESTER

Analysts
Cobol Programmers
Assembler Programmers
and 4% Mortgage

Move into the BIG (Real) Time!
Our client has already developed and implemented an advanced on-line real-time system which has operated successfully for several years. However, being one of the well known banks, it is intended that the lead in the provision of personal banking services to a large proportion of the population will be maintained. They have commenced the design of an integrated database oriented on-line system which will reflect the needs of banks for the next decade and beyond. The hardware is UNIVAC 1100/82 connected to Burroughs intelligent terminals via a distributed processor network. Implementation will commence in 1980, will you be there? Our client offers all the benefits usually associated with a large banking organisation including house purchase scheme, worth over £600 per annum on an average mortgage.

CW 129-9M

Return coupon if preferred for consideration in these posts:—
Refs: ______
Other positions (Tick): ______
Name: ______
Address: ______
______
Present post: ______
Experience: Years: ______
Hardware: ______
Languages: ______
______
Systems ______
______
Phone: Home ______
Office ______
(used with discretion)

Positions open to male & female applicants, please telephone (24 hour service) for initial discussion or write to address below. QUOTE REFS. ABOVE

COMPUTER AND PROFESSIONAL PERSONNEL CONSULTANTS
CAPP ASSOCIATES LONDON AND MANCHESTER
Computing Services Association
061-236 9085
FAULKNER HOUSE, FAULKNER STREET, MANCHESTER M1 4YD

BUSINESS ANALYSTS — **LONDON, CITY £7000-£9000**
Experienced Analysts who will work closer to the User. (Bill) Ref 1

SALES PEOPLE — **LONDON & SOUTHEAST £16000 quota + car**
Sell Mini computer systems for International Company (Bill) Ref 2

SALES PEOPLE — **LONDON-MIDLANDS-MANCHESTER £14000 quota + car**
Mini computer manufacturer seeks Sales People in various locations (Bill) Ref 3

TRAINEE ANALYSTS — **NORTH LONDON to £6700**
Experienced Programmers or Prog./Anals will receive full training Batch and On-line Systems (David) Ref 4

SR. ANALYST/PROGRAMMERS — **LONDON & CITY £6000-£12000**
Major Consultancy wants well experienced Anal./Progs. (Bill) Ref 5

COMPUTER MANAGER — **LONDON SE1 £7000**
Business Analyst with prof. some type Accounting qualifications. (David) Ref. 6

PL/1 and/or ASSEMBLER — **CITY to £7000**
Programmers to gain more sophisticated exp. in Major expanding IBM installation. (Bill) Ref. 7

COBOL PROGRAMMERS — **CRAWLEY, SUSSEX to £5750**
4 years Cobol experience to work on DATABASE and ON-LINE systems. (David) Ref 8

SYSTEMS ANALYSTS — **CENTRAL LONDON £6700-£6700**
Lead or join teams working on large projects in Major IBM installation. (Bill) Ref. 9

RPG 11 PROGRAMMER/ANALYST CENTRAL LONDON £5000
18 months exp of RPG 11 Formal Systems training offered. IBM System 34. (David) Ref 10

TELEPHONE: 01-839 6087
Bill Taylor or David Ward

BARSON, TAYLOR & WARD
Computer Personnel Consultants
107 Jermyn St. London SW1

BARSON TAYLOR & WARD LTD

Computer Operators

BICC, a major British group with over 100 sites both at home and abroad, are seeking a Computer Operator (male female) for our Regional Computer Centre based at Wallington, near Croydon.

The centre, which operates on a 2 shift system, provides a data processing service to the Group's member companies and is equipped with an ICL 2903 which is linked to a 1904S installation in the North West.

Candidates should have at least 12 months operating experience on a 1900 series installation and disc experience would be an advantage.

The commencing salary will be within the range £3162–£3588 per annum (including London allowance) plus shift allowances and bonus.

Other conditions of employment are those you would expect from a major group.

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Applications are invited from Programmers with at least two years' experience of COBOL on ICL 1900 equipment using EDS and GEO II operating systems.

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Closing date for receipt of application forms [illegible]

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ENGINEERING OPPORTUNITIES

Does the personnel department help or hinder recruitment?

By Peter Thomson

How important is the role of the personnel officer in interviewing and recruiting staff? Peter Thomson himself a personnel manager with Digital Equipment, discusses the functions of the personnel department.

DOES it ever seem that the problem with applying for jobs is the way personnel departments appear to be trying to make life difficult for you?

Invariably there is a complicated application form to complete, a long wait for a reply, an interview arranged at an awkward time — and then only a personnel officer (instead of your prospective boss and colleagues) interview you. Only after surviving this ordeal do you stand a chance of meeting someone who knows something about the job, the products, the business and the pay (i.e., the manager responsible).

So what do companies employ personnel people to do? What can a personnel officer contribute to the recruitment process and why should applicants be expected to convince someone who doesn't understand the job that they are able to do it?

The main reason that personnel people can be a barrier between an applicant and the person he really wants to meet, is because many personnel officers are employed to just that. Rather than spending valuable management time interviewing hundreds of applicants, many companies have personnel officers who sift and interview applicants, giving a short list of pre-selected people to the manager concerned.

This situation works well in labour markets where there is unemployment and there are queues of people for every vacancy. But it is certainly not appropriate for the labour market in the computer industry today.

It is easy to see from the columns of job adverts each week in Computer Weekly that there is a shortage of trained labour in all sections of the computer industry. As a result of this, computer firms do not have hundreds of people clamouring to join them. Applicants can afford to be choosy about the company they want to work for and may not be prepared to put up with a cumbersome recruitment process.

So these companies need to reconsider the recruitment process in the light of today's computer labour market, reassessing the role of personnel and making sure it is a help, not a hindrance. At Digital for example, we encourage line managers to get together with applicants first and then have personnel involved at a later stage, if appropriate. This allows the applicant to get many of his or her detailed questions answered at an early stage, rather than wait until the second or third visit before finding the job is not right.

It is important for an applicant to get to meet the prospective manager, and some of the other members of the department, to decide whether they are the sort of people he or she wants to work with. After all, an interview is a two way process: it is as much the applicant choosing the company as it is the other way round.

So what do personnel people actually add to the selection process? Most of them are not qualified to select people on the basis of technical competence, so why are they involved in recruitment at all? The answer to this depends on the emphasis the company puts on personality in the selection of people.

Those companies that are not particularly selective on personality may expect the personnel interviewer to be purely checking some of the factual history about the applicant and handling the practical issues like relocation, salary and benefits. Other companies use personnel professionals as a major part of staff selection in assessing the personal qualities of the individual applicants, and deciding whether he or she meets the company's norms.

With the good computer professionals it is tempting for companies to drop the standards required when recruiting new employees. Dropping these standards by taking on someone with too little experience or not enough training is not disastrous since the experience and training can be provided by the company.

Dropping the standards of personality required can be disastrous as this is not something that can be readily changed and a disruptive character has a direct influence on other people's work.

So any company that has a good atmosphere and wishes to retain it, needs to be careful that it takes on people who will fit in well.

It is by establishing which characteristics of personality reflect a company's style and then selecting people based on these factors, that the personnel professional performs a vital role in recruitment. It is tempting for a line manager to overlook personality issues when faced with an interviewee who is technically brilliant. The personnel interviewer can take a more objective view of the applicant's personal qualities and concentrate on establishing whether these will fit the company's style.

Since interviewing is more of an art than a science and personnel people tend to get a lot more practice at it than any individual manager, recruitment can be more effective with the use of such professional resources. Those companies not particularly concerned about maintaining a particular atmosphere among employees may choose to use personnel officers merely for routine paper work and initial screening.

Other companies recognise that their success depends on the motivation of the individuals in it. These companies will tend to have personnel departments which ensure that successful applicants are the ones whose personality fits the company's particular style — and vice versa — and that recruitment will not be based on technical abilities alone.

From strength to strength with Digital. Put your professional muscle behind our impressive expansion.

Digital keeps going from strength to strength. Inventors of the minicomputer and the world leaders in its design and manufacture, we're continuing to develop our business.

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Our Computer Special Systems Division provides a stimulating environment dealing with complex 'one-off' products tailored to specific customer requirements.

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Our European Software Engineering Division, based in Reading, develops standard software products for the Corporation. You will be involved in product definition, design, testing and implementation.

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Marketing Specialists

Our Computer Special Systems Division needs senior level people to interface both to the market and our own specialists. They will be responsible for specifying, pricing and seeing customers orders through to completion.

You should have a firmware/hardware background with sales or marketing experience and be able to negotiate with people at all levels.

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May 3rd & 31st issue

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The company has an excellent pedigree and all its products are technically advanced and internationally accepted. These opportunities therefore offer interesting excellent career prospects and interesting work without the hassle of short notice call-outs.

Contact: TONY BAKER — 01-499 4501 (or write to him at the address below).

Ref: RW 17/2

SCOTLAND

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A REALITY. Ref: RW 17/4

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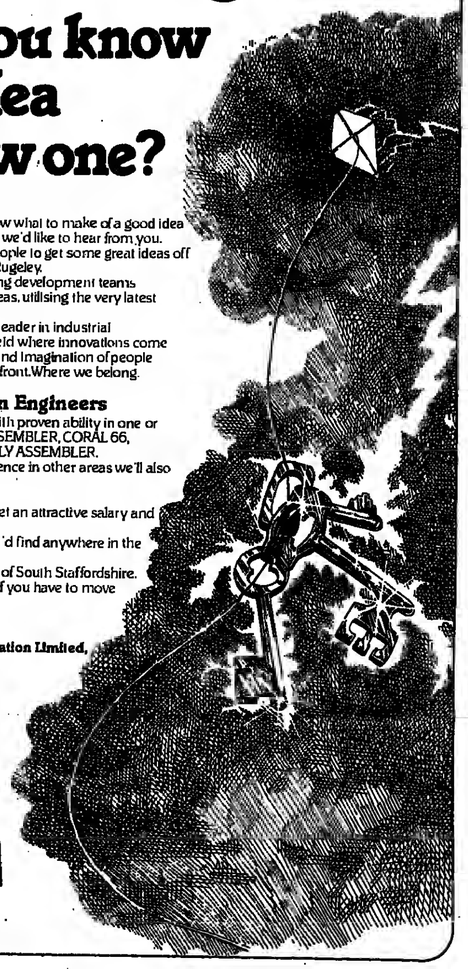
Electronic Engineers:

Would you know a good idea if you saw one?



Benjamin Franklin really knew what to make of a good idea when it struck him. If you do too, then we'd like to hear from you.

Because we're looking for people to get some great ideas off the ground at our production unit in Rugeley.

With the help of our expanding development teams we're moving into completely new areas, utilising the very latest in micro-electronics technology.

In fact, we're already a world leader in industrial electronic control systems. But it's a field where innovations come thick and fast. And only the expertise and imagination of people like you can make sure we stay out in front. Where we belong.

Computer Systems Design Engineers

We're looking for someone with proven ability in one or more of the following areas: PDP 11 ASSEMBLER, CORAL 66, FORTRAN, RSX 11-M, INTEL 8080 FAMILY ASSEMBLER.

But if you have related experience in other areas we'll also consider you for the job.

With any of these jobs you'll get an attractive salary and good conditions of employment.

Plus prospects as good as you'd find anywhere in the industry.

We're based in a pleasant part of South Staffordshire. The housing is reasonably priced. And if you have to move we'll really help with the expense.

So why not contact:
The Personnel Officer, Thorn Automation Limited, PO Box 4, Rugeley, Staffordshire. Tel: Rugeley 5151.

It could be the best idea you've had in ages.

THORN **THORN AUTOMATION**

Applications are welcome from both men and women.

What's the difference between programmers and software engineers?

The DP business is notorious for generating jargon.

So we'd forgive you if you reckoned that the difference between programming and software engineering was more apparent than real.

But at Marconi Avionics at Borehamwood, that difference is very real indeed.

You can't really call the men and women who write our software mere programmers – their job's much too involved for that. They work very closely with engineering teams designing some of the most advanced electronics systems in the world – like the airborne radar for the AEW Nimrod and the ADV Tornado. It's their task to create the software which is at the heart of the whole system. In the kind of systems we're talking about, the software design and integrity is so important that everything else is really a peripheral – including the ships, aircraft and vehicles in which they're installed.

It's very different to the software world you may be used to – more demanding, certainly more rewarding. But not so different as to put it out of your reach. Because with a couple of years software experience on anything other than straightforward commercial number crunching, and a good knowledge of any assembler-type language, you'll be ready to make the switch into software engineering.

Peter Chinn, the Manager of our Airborne Software Division, can tell you more. Phone him on 01-953 2030 Extension 3239, or write with brief details of your programming experience to H. E. Batcheldor, Marconi Avionics Limited, Elstree Way, Borehamwood, Herts. Quote ref: MA.79070.

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SENIOR I.B.M. EXPERIENCED ENGINEERS

c. £14,500

+ **European Travel**
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The job will involve in-house and on-site installation, de-installation, feature fitting and removal, predominantly on 370 processors.

Candidates should have in-depth experience in this field to I B M standards.

The position will carry a basic salary negotiable around £9,000 with bonuses and overtime bringing the income level close to £16,000 p.a. Full expenses will also be paid.

This company, in the early stages of the European operation offer an exciting and progressive career based on the current growth pattern of their 8 years + established American parent. A deciding factor in the appointments they will relate to the ambition and enthusiasm for a career illustrated by prospective candidates. Experience gained with the company will undoubtedly prove invaluable in terms of the wide range of activities that will be undertaken.

Phone Jack Cowdy, Director, on 01-603 7335

IRP Information Processing People
58 Pembroke Road, London W8. Telephone 01-603 7335 Telex
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We are an established company with offices in Feltham (Middlesex), Esher (Surrey) and Manchester. In both 1978 and 1979 we achieved 80% growth.

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Telephone Mrs. P. Boswell on 01-898 1821 to discuss, or write to her at Documentation Ltd., 13 Mount Road, Hanworth, Feltham, Middlesex TW13 6AR.

DOCUMATION LIMITED

Field Engineers

Manchester/ Merseyside Areas

Calcomp is the world's leading manufacturer of computer graphics systems with a wide range of drum and flatbed pen plotters, electrostatic plotter/printers, com Graphic systems, digitisers and turnkey interactive graphics systems. Due to rapidly [illegible] we are now [illegible] additional Field Service Engineers to the existing 20-strong U.K. service team.

Working from home but under the direction of an Area Supervisor, you will be involved in all aspects of technical support for customers of our advanced range of microprocessor based graphics systems in the Manchester, Liverpool and Preston areas.

ONC or HNC qualifications are essential and you should already have 2-3 years' engineering experience in the computer industry. You will receive full product training and from time to time will be required to attend follow-up training courses in our European training centre or in California.

This is a first-class opportunity to gain valuable experience and make real headway with the leading company in its field. Immediate rewards include:

Excellent salary, plus benefits
Company car.
Opportunities for bonus earnings.

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CALCOMP

Data Communications

ADVANCED NETWORK EQUIPMENT seeks outstanding **SALES EXECUTIVES** and **ENGINEERS** for satisfying long-term relationship. I have faultless communications, wonderfully integrated design and unrivalled control features. I will provide an excellent income and car. Write or call.

INTERTEL communication equipment is probably the most advanced available anywhere for modems and network control. An integrated range of devices meets user needs from small single computer terminal systems to large complex networks with many distributed processors. No other products offer such powerful diagnostic and control facilities from a single site. INTERTEL equipment is marketed in the UK by Data Logic's Communications Products Division. User reaction is enthusiastic and sales are rising fast.

Sales Executives (CP/02)
We need experienced and energetic Sales Executives to develop the market further. Candidates should have experience of selling or supporting the sales of relevant data communications or terminal products. They must be knowledgeable about the rapidly changing field of data communications, highly self-sufficient and mobile.
We offer an excellent basic salary, together with commission which should take annual earnings to over £12,000. A car and competitive benefits will be provided.

Support Engineers (CP/01)
For sales and engineering support roles within the division. Applicants should have experience either in sales support for data equipment or in design for digital and analogue systems. A degree or HNC qualification is desirable.
Salaries will be up to £7,000 and a car will be provided. Opportunities to progress to senior sales roles will be excellent.

Write or telephone quoting the appropriate reference
Kathy Martin, Data Logic Limited
29 Marylebone Road
London NW1 Tel 01-486 7288

Data Logic

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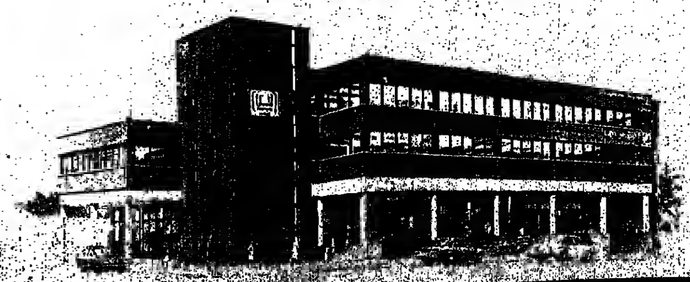
Quality first

Join the experts - explore the frontiers of computing technology

OPPORTUNITIES IN CAMBERLEY, FRIMLEY AND MANCHESTER

Systems Designers Limited frequently designs systems for hostile environments. That means putting computers to work on battlefields, in helicopters, and advanced combat aircraft, in steel mills and on ships at sea.
Successful completion of such projects has given us an unrivalled reputation, particularly in real time mini and micro applications, using the latest software techniques. It has also set us on an expansion path which promises professional software and systems engineers who join us now, a challenging and rewarding career throughout the 80's and beyond.
Systems Designers Limited is an independent British systems consultancy whose firmly established credibility and NEB backing ensure a confident and exciting future. Our staff, currently numbering some 200, share this confidence. They benefit from a company policy which offers maximum opportunities for rapid advancement through being involved with some of the most advanced computer systems in the world. Our continuing requirement is for Consultants, Engineers and Programmers, who should have a good academic background and at least one year's software experience, although we will be very interested in hearing from final year undergraduates.
Applicants should also be able to demonstrate a capability to work in new areas of mini and micro computer applications. We have a client base which covers UK, Europe, Middle East and USA, so there is a real opportunity to travel.



Our principal work areas are currently:

COMMUNICATIONS: Message switching, Telex systems, Communications management systems, computer communications.

INDUSTRIAL: Process control and monitoring, plant control simulation, high speed data analysis, distributed microprocessor systems.

MILITARY: Modelling, avionics and radar systems, complex rigs, simulators, microprocessor missile systems.

SOFTWARE PRODUCTS: Compiler technology, software design techniques, MASCOT, information processing systems, e.g. STATUB and Viewdata systems.

CONSULTANCY: Complex military systems, software and systems development technology.

All areas of involvement are supported by specialist consultants.

Systems Designers controls the career progression of its staff to give them a wide variety of experience, both of project applications and of computer systems.

Salary is negotiable up to £10,800 p.a. according to ability and experience.

The company runs productivity bonus, insurance and pension schemes and offers assistance with relocation if required.

Telephone Ann Gregory for an application form and further information about the company, or write to:

Bill Hockey, Operations Director, Systems Designers Limited, Systems House, 1 Pembroke Broadway, Camberley, Surrey GU15 3XH
Telephone Camberley (0276) 62244.

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Bachelor Status

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May 3rd & 31st issue

These two issues are effected by the Bank Holidays. Copy for both should be sent early to arrive not later than the Friday preceding date of publication. **ONLY** a small amount will be accepted on each Tuesday morning.

For further details contact David Abbey

Tel: 01-261 8016. Telex Bisneapress London 25137

SEISCOM DELTA EXPLORATION INC.
Cumberland House, Fenian Street, Dublin 2

COMPUTER ENGINEER

Minimum 5 years' mainframe and peripheral experience required. Minimum — Leaving Certificate with additional electronics and/or telecommunications training or University. Formal training on semi-conductors, TTL Logic and central processors required.

This position offers an opportunity to work on the most modern equipment of its type; additional training will be given.

Candidates are requested to make initial contact with Ann Martin in London. Telephone: 01-723 9251.

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to develop MICRO PROCESSOR BASED PRODUCTS

We would like to hear from engineers of all levels interested in the development of microprocessor based products covering a wide range of applications. Some microprocessor experience would be looked for, together with ideally TTL type logic or Assembly level programming experience

For the right people these appointments are to be based in Berkshire or the South Coast and will carry competitive employment packages and open ended career prospects.

Please telephone quoting ref. C W 171

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Telex 477567 Youngs G

COMPUTER MAINTENANCE ENGINEER

N.W. Surrey Area

We are a new company engaged in seismic data processing. We will be using an SEL 32/77 (Megasers) computer to be installed in June 1979

We are looking for a competent, well-qualified computer engineer to maintain the SEL computer and all ancillary equipment, which will include hard copy and electrostatic plotters. Experience of SEL hardware is not essential as training will be given by the likely candidate must have ability to learn quickly, to supervise other people, to accept responsibility and above all to fit into an enthusiastic hard-working team.

Salary scale £6,000 to £7,000 depending on experience and qualifications. Other benefits include car mileage allowance and private health insurance

Write or phone

Mike Doherty
Merlin Goophyelcal
Se Woodthorpe Road
ASHFDRD, Middlesex
Tel. Ashford 56669

Electronics Engineer

Management Potential
circa £9,000. pa + Car

N.B.S. the world's largest supplier of credit card imprinters requires for its U.K. operation an electronics systems engineer to join a dedicated and successful team, marketing and servicing computer driven electro-mechanical banking and embossing systems.

The candidate should offer:

- Computer logic experience
- Interface design ability
- An ability to be flexible in a rapidly expanding environment, in sales, technical support and development.

This position represents an ideal career development platform for the right candidate.

For an appointment, telephone Weybridge 53291 and ask for Mr. Peter Cox *(Managing Director)*.

NBS 68 High Street, Weybridge, Surrey.

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New career £6,000 + car

Training in U.S.A. and Europe

New company (secure financial backing) marketing 16 bit micro based computers in the U.K. requires bright young service/Tech support engineer.

You will visit both U.S.A. and Europe for training, enjoy tremendous variety and lots of personal contact.

Live in London or home counties

If you have good academic background/computer experience, can communicate then take a big stride forward to a really exciting new career with excellent future prospects

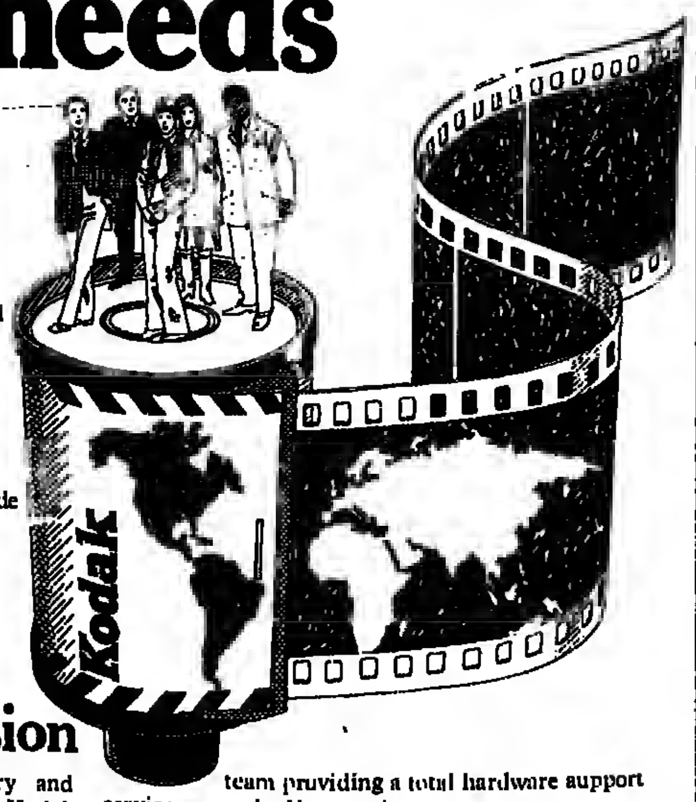
Start c. £6,000
(more if in micro processing)
+ car + expenses

Ref. EK2166

ab executive (weybridge) TELEPHONE 0932 41321

Engineers

Kodak needs you



Kodak Limited has manufacturing plants and services throughout the UK. The continuing expansion of the company is supported by a multi-million pound investment programme. Not everyone realises that many kinds of engineering are involved in the development and production of the wide Kodak ranges of photographic films and papers. These are made at the highly automated Harrow plant, where round-the-clock production is planned, computed and geared to estimated demand.

Join our large Engineering Division

where much of the advanced machinery and equipment is specially designed and built by Kodak and the latest computer technology is applied to the manufacturing process.

Moreover you will be joining a division which contains all the professional engineering disciplines and within which you can develop your own career.

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circa £8,000 p.a.

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The work includes interfacing of plant and peripherals and installation commissioning and acceptance testing of new systems.

Applicants will be Chartered Engineers or have a minimum of HNC in a relevant discipline and preferably have had a minimum of two years' practical experience in installation and commissioning and/or maintenance of Ferranti and/or DEC computer systems.

Salary circa £8,000 + Productivity Bonus.
Reference SS/114

Interested men or women should telephone, or write for an application form quoting the reference number to:

Mrs. E. Maitland, Personnel Department, Kodak Limited, Headstone Drive, Harrow, Middx.
Tel. 01-427 4380 Ext. 606.

Kodak

E.P.D. SERVICES LIMITED

PROGRAMMERS

Additional PROGRAMMERS are required to join our team operating in Aberdeen to undertake extensive development work on new contracts

The company at present provides Stock, Customs and Personnel Control Systems for the North Sea Oil Industry.

Applicants should have experience of RSTS/E on DEC PDP processors.

Attractive salaries and conditions are offered according to experience.

Applications including full CV should be addressed to

D. Archibald, Operations Manager
EPD Services Limited
16 Justice Mill Lane
ABEROEEN AB1 2EP

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MARKETING AND TECHNICAL SPECIALISTS

Based in London with UK and overseas travel.

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Managing Director
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ENGINEERING OPPORTUNITIES

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OUR GRASS IS GREENER!

You only have to look at our growth rate to realise that Field Engineers can move on to better things quite quickly at Data General.

We're one of the world's foremost mini-computer companies . . . each year announcing new highs in sales, earnings, computers sold, facilities occupied and people employed.

A major reason for success is that we have compatible hardware products that can be interchanged and function together as integrated systems backed by software that will function with almost any of our systems.

We plough back a significant amount of sales revenue into research and development . . . in fact we have one of the highest ratios in the industry.

The chart gives an indication of our growth and strength.

Right now we are looking for FSE's who see themselves in technical support and managerial positions both in the UK and Europe within two to three years.

So you must know the computer business inside out with at least two years experience as an engineer.

You can expect your knowledge to be stretched to the full working on innovative equipment which currently includes a fully compatible range of Eclipse, NOVA and MicroNOVA's, CS/40 and 600 systems.

You should be capable of trouble-shooting to component level (our systems include CP's, moving head disc, mag tape and several electro-mechanical devices).

We have an immediate need for a number of Field Service Engineers who will be based in various parts of the UK but especially in the London area.

Don't let the grass grow under your feet any longer. Get in touch today. Applications should be sent to David Daley, Personnel Manager, at the following address, or telephone Tony Peacock, UK Field Service Manager, on 01-841 5151.

Data General
3rd & 4th Floors, Hounslow House, 724/734 London Road, Hounslow, Middlesex TW3 1PD

Ingersoll-Rand manufacture and market an internationally successful range of pumps and compressors. Our Gateshead plant offers considerable scope for individuals who can actively contribute to an aggressive go ahead operation.

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The ideal candidate (male/female) will have at least one year's analyst experience, a knowledge of COBOL and or R.P.G. would be an advantage. We have an IBM system 34 computer linked to an IBM 370/138 in Manchester, which will involve the successful candidate in the use of VDU terminal systems. He/she will also be expected to undertake systems in the order entry, bills of material, gross requirements, finance and inventory control areas.

Please write or phone The Personnel Department, Ingersoll-Rand Company Limited, Queensway, Team Valley Trading Estate, Gateshead, Tyne & Wear, NE11 0QB. Tel. 675051.

Ingersoll-Rand

Systems & Programming Manager

BRISTOL

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- DL/1 Database
- Enhancements to on-line Systems.

There is a development staff of 12 systems analysts and programmers; the main computer being an IBM 370/145, soon to be replaced by an IBM 4341.

The successful applicant, male or female, will probably be a graduate (or have an equivalent professional qualification) with at least 10 years' experience in the development of commercial data processing systems, preferably, but not necessarily, with a financial organisation. There will be an opportunity for career progression.

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For an application form write, giving brief relevant details, to: Personnel Manager, Bristol & West Building Society, Head Office, P.O. Box 27, Broad Quay, Bristol BS99 7AX.

Bristol & West BUILDING SOCIETY
A MEMBER OF THE BUILDING SOCIETIES ASSOCIATION

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Currently we are seeking the following:

RPGII Analyst/Programmer — German spaaking prefarred and IBM 370 Programmers — Dutch or German speaking.
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Systems Analysts with Point of Sale experience, for Denmark — Salary £25,000 +.
IBM Systems Programmers, IBM IMS Programmers, IBM DOS to OS/MVS convarsion Programmers for Denmark, Holland.
Technical Authors to davalop telephona exchange documentation. Must have knowledge of protocols.
The total remuneration packages for the above are excellant. Initial interviews will be held in London during May.

Ref. 17/1

HAVEN HAVEN HAVEN HAVE

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LONDON — **to £8,000+**

An expanding international software housa seeks all levels of D.P. staff to develop commercial systems on both minis and mainframes. Mainframe programming in COBOL or IBM/ICL machines preferred or mini experience with BASIC. Opportunities for overseas assignments.

Ref 17/2

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Ref 17/3

INFORMATIX UNITED KINGDOM AND OVERSEAS INDEX

Haven Informatix Limited
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Consultants and Analysts

Uxbridge and Brighton — Circa £8000

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We offer
- The opportunity to work on a variety of new development projects
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- A professional software house environment
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- Free BUPA
- 4 weeks annual holiday

If you are interested in a challenging future write to, or phone, Steve Saxby, Recruitment and Training Co-ordinator, Grand Metropolitan Systems Ltd, Oxford House, Oxford Road, Uxbridge UB8 1UN. Tel: Uxbridge 58111.

Grand Metropolitan Systems Limited — THE LOGICAL CHOICE

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SYSTEMS OPPORTUNITIES • c £8000 • BERKS

Our Client, a leading automotive component manufacturer within one of Britain's foremost engineering groups, has decided to implament tha plans for a wide variety of applications in both the manufacturing and financial areas.

The recently announced mainframa hardwara thay intand purchasing will enable them to design and develop naw real-tima databasa systems for the 1980's, embracing the most modern systams philosophies and tha latast software techniques.

Applications ara invitad from both experienced Systems Analysts and Senior Analysts who are looking for sanior positions as Taam Laadars, Databasa Specialists and avan as Project Leader Dasignates. These challanging positions offer succassful candidates the opportunity to work on one or mora of the following applications:

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The fringe benefits offered by this mejor internetional company ere not only the usuel four weeks' holiday, pension scheme and sick pay, but also includes generous assistance with relocetion expenses (where applicable) and e subsidised centeen together with excellent sports and sociel facilities.

If you heve outgrown your present position and need to join e compeny where ability is quickly recognised and rewarded by both remuneretion and promotion to menegement or supervisory areas, this is probably just the boost your career needs.

For further informetion and applicetion form, telephone us todey in complete confidence quoting ref. PJ 79663/1 on the following number

HEXAGON computer services
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TEL 01-439 3671

In Sales or Sales Support?

Join CTL

The British Systems and Software Company

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£9K+Car: London & Home Counties

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Candidates, male or female, ideally will have a successful record of selling business systems to the commercial market and have a background in computing or a related field. Highly developed written and oral skills are essential.

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Up to £8K+Car

to provide front line technical support to our sales team at the pre-sales stage. The successful candidate will be involved in sales projects connected with the design of disc-based DP systems and their implementation.

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For both posts, we offer an attractive benefits package and excellent career prospects. Please telephone for further details to George Pearson at our London Sales Office, 628 Long Lane, London EC1A 4JH. Tel: 01-606 6307 or alternatively write for an application form to Jim Parle, Personnel Officer, Computer Technology Limited, Eaton Road, Hemel Hempstead, Herts HP2 7BQ.

CTL The British Computer Systems and Software Company

DIRECTOR SALES & ADMINISTRATION AMSTERDAM

DFL 100,000 + PACKAGE

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LOGISTIX

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Data Controller

Somerset c.£4,200

Plessey Marine Research is the R&D Unit of Plessey Marine - internationally acknowledged in marine electronics and underwater acoustics. We're committed to a challenging programme of major projects for navies worldwide.

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Contact Stuart Carter, Personnel Manager, Plessey Marine Research Unit, Wilkinthroop House, Templecombe, Somerset. Tel: Templecombe (0963 7) 551.

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with CDS, an established consultancy with offices in the UK & Switzerland. These assignments are representative of our contracts with internationally respected clients, and are on a 6-monthly renewable basis.

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We have a number of projects in Holland, Belgium and Germany involving the use of CICS or IMS DB / DC and would like to hear from programmers with experience in these areas who are interested in working on the continent.
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Projects are varied and interesting and include feasibility studies, system design and implementation, machine selection, computer policy reviews, and D.P. organisational studies.

Applicants should have a minimum of four years D.P. experience, be able to assume project responsibility and will probably have worked as project manager or team leader. A degree or professional qualification is required and experience of database or on-line systems would be advantageous.

Terms and conditions of service are excellent and substantial salaries will be negotiated. Additional benefits include generous car allowances, pension and life assurance and a profit-sharing scheme for senior staff.

Please write with full details of qualifications, experience and present salary to G. C. Child, Annan Impey Morrish, Management Consultants, 40/43, Chancery Lane, London, WC2A 1JJ.

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A unique opportunity exists for a seasoned Data Processing Manager to assume responsibility for our entire European operation. Excellent salary, benefits package and relocation assistance.

Applicants must meet the following qualifications:

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- Proven record in large scale data processing management: Business systems and IBM-O.S. technical background.
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If you feel you have the above qualifications and desire the challenge of this high level position, we urge you to submit brief career details, including salary history, to:

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This appointment is open to men and women. Please allow several weeks for confidential review.

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NORTH CENTRAL DIVISION

COMPUTER OPERATIONS SUPERVISOR

POST REF. F50
£4,635-£4,982 per annum (including supplement)

Applications are invited for the above post within the Finance Section of North Central Division based on the north side of Leeds

The successful applicant will have a subordinate staff of four and will be responsible for the control and operation of an installation which includes an ICL 7503 Terminal (used as an RJE Terminal linked to the Authority's own ICL 2970 computer located in Bradford operating under VME/B) and data preparation equipment. A wide variety of commercial and technical applications are processed

Applicants should have previous experience of remote batch terminal operating systems, some supervisory experience and preferably HNC Computer Studies.

The possession of a current clean driving licence would be an advantage.

Application forms are available from the Division Director, Yorkshire Water Authority, North Central Division, Spenfield, 182 Otley Road, Leeds LS16 5PR. (Tel: 781313, Ext. 255) to whom they should be returned not later than Thursday, 10th May, 1979.

THANET JOINT COMPUTER COMMITTEE

SYSTEMS ANALYST/PROGRAMMER

£4,773-£5,568 p.a. incl.
[AP5/SO1]

The Committee operates a Honeywell 62/40 on behalf of the Thanet and Dover District Councils and consideration is being given to the use of on-line applications by both user authorities. A suitably experienced person is required to assist in improving existing systems and developing new systems

Applicants should preferably have a sound knowledge of systems analysis and programming in COBOL

Consideration will be given to housing accommodation and a generous disturbance allowance scheme is in operation.

Applications giving full details of experience to date to.

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The level of sophistication and precision we aim for is dictated by the very strenuous and complex demands of advanced air traffic control and defence radar systems, of which software is the absolute essence.
Our need is therefore for men and women with the ability, commitment and the potential for assuming greater responsibility within this exacting but rewarding discipline. A technical background would be an added advantage

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To be responsible for the detailed flow-charting, program coding, testing, and documentation of program modules, under supervision and to defined standards.

ANALYST PROGRAMMERS

To undertake small system or sub-system design, and to control the implementation of the design of other projects.

SENIOR ANALYST PROGRAMMERS

To supervise and monitor the work of a team of programmers, and contribute to systems design, planning control of a project or part project.
For more information 'phone either Bernard Walsh and Brian Edwards on Wednesday, 2nd May, between 5.30 p.m.-9 p.m. just dial the GPO operator and request a reverse charge call to either Chelmsford (0245) 63595 or Chelmsford (0245) 63577.

If you can't manage to 'phone but are still interested in the challenging opportunities available write to Bernard Walsh at Marconi Radar Systems Ltd, Freepost, Writtle Road, Chelmsford CM1 3BR, or telephone him on Chelmsford (0245) 57131. Please quote reference BW132.

Marconi Radar

OPERATIONS SUPERVISOR

£4,660-£6,130 p.a.

The North Western Region of the Central Electricity Generating Board is looking for a suitable person to join the staff at the Computer Branch which is situated in pleasant surroundings in Bramhall, Cheshire.
The Operations Supervisor is responsible for the efficient day to day running of the computing equipment and for the supervision of the computer operating and job control staff who work both a day and shift pattern.
The computing equipment in the Region, at present, includes a 192K ICL 1904S computer operating system and an ICL 7905 communications processor. The 1904S is to be replaced in 1980 by a 2,5 Megabyte 2980.
A thorough knowledge of computer operating using an advanced operating system is required together with experience in operation of large-scale communications facilities.

Applications in writing, from either sex, giving details of age, experience, qualifications etc. to the Personnel Manager, C.E.G.B., Europe House, Bird Hall Lane, Cheadle Heath, Stockport, Cheshire SK3 0XA to arrive no later than 10th May, 1979. Please quote vacancy number 229/CW.

NORTH WEST

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A Cobol programmer with two years' experience is also required to work at our European D.P. Headquarters in Sunbury, Middlesex. Initially working on a 360/50 DOS System the job offers scope for increasing responsibility and involvement as the European data processing requirements increase and our installed minis progress towards a distributed processing network.

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or telephone Sunbury
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DEPARTMENT OF MATHEMATICS & COMPUTER STUDIES

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Salary: £4068-£7167 (bar)-£7898 (presently under review).
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A Sales & Marketing Services Company
TRAINING, PROMOTION, RESEARCH, RECRUITMENT

THE SALES AND MARKETING BIT

TERRITORY MANAGEMENT —II

Effective use of travelling time

A SALESMAN typically spends one-third of his time travelling. That's one helluva waste of selling time!

It is therefore likely that sales organisations could gain more benefit from concentrating on the more effective use of travelling time than might be derived from concentrating on those disciplines which are principally designed to improve selling techniques.

It is undeniable that the number of calls made by salesmen can be significantly increased by the more effective use of travelling time. This can be achieved by conscientious planning and organisation on the part of each individual.

The first and most essential tool is a territory map with the salesman's home base clearly indicated, as well as the location of each client and prospect. A colour-coding system to differentiate between clients, prospects, industries, products, special situations, etc is particularly useful. Artificial territory zones can then be created which encompass each logical geographic grouping of these existing contacts.

These zones should be regarded as primary territory, and the remainder as "sheep" country where activity by and large is initiated by opportunities creating themselves rather than being sought out by the salesman. After all, the salesman is not obliged to cover a large geographic territory merely because it has been allocated to him.

Once these primary selling zones have been established the salesman then organises all his journey planning accordingly, in the context of both contact with existing clients and active prospecting.

If a special, perhaps industry oriented, campaign or promotion or self-generated prospect creates a need for departing from the primary selling zones, then it should be regarded as a possible extension of an existing zone and approached with that zone in mind. If the prospect turns out to be worthless then the journey naturally includes the opportunity of calling on existing clients and prospects on the way back, thus avoiding a completely wasted journey.

A simple but effective discipline is to ensure that the first call of the day or trip is the one furthest away, and that wherever possible the appointment starts between 8.30 and 9.00 am. All subsequent calls should then be planned in order of decreasing distance from home.

Sometimes a circular calling route or "round trip" is more applicable than a "straight-line" journey. In these circumstances the client furthest from home might be best visited half-way through the day. If this is the case then the nearest call to home should still be last, and a few minutes should be spent studying a road-map before the appointments are made, and deciding upon the shortest total journey which will embrace all the visits which have been planned.

There are usually several alternative routes, and the difference between the shortest and the longest could easily mean an extra selling call.

Another useful discipline is for the salesman to include in his categorisation of clients and prospects an arbitrary priority factor and a value factor which affects the frequency of visits.

For example:

1) Existing clients with an annual potential revenue value of under £20,000 — call every eight weeks.
2) Existing clients with an annual potential value of over £20,000 — call every four weeks.
3) All prospects of any value rated at over 40% chance of winning — call every four weeks.
4) All prospects of any value rated at over 70% chance of winning — call every week.

I often meet salesmen who sell high-value capital goods — perhaps dealing with less than half a dozen prospects and clients — and who are in the habit of making only two or three sales calls a week. Their reaction to territory planning is that it cannot be applied to their situation.

As far as I am concerned this is merely an excuse for insufficient sales activity. The higher the capital value the more people need to be influenced in order to secure the business: different departments, different people, different locations.

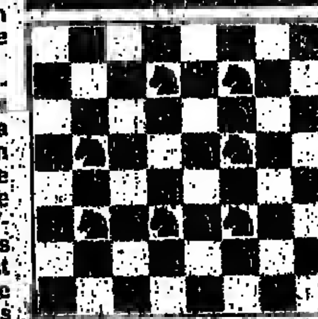
There is no reason why an effective mainframe salesman should be making fewer selling calls than a media salesman when he is on territory, as opposed to proposal writing back at the ranch.

Having said all that, the salesman needs another discipline in order to apply the disciplines of territory and journey planning. He must make his appointments well ahead.

Plan so far ahead that the client is likely to be looking at blank pages in his diary during the period in which the salesman wishes to make an appointment. This is not a guaranteed approach, but in my experience constantly booking appointments 2/3 weeks ahead saves a lot of the "I can only spare you ten minutes" hassles.

TRADER

Puzzle Answer



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Analyst Programmer COBOL/2900	£5000+	S. London Ref. M3091
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ICL Operators Gill+		Central London Ref. M3030A
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IBM Operators OS		[illegible]
Honeywell Operators GCOS		East Anglia Ref. M3011
Univac Operators OS3		West London Ref. OM390
PDP Operators		Scotland Ref. MP393
IBM Operators OS		West London Ref. MH346
ICL Operators GIII		West Country Ref. MH390
Honeywell Operators GCOS		Essex Ref. MH181

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Shift Leader DOS/VS POWER/VS	to £5000	Croydon Ref. B2811
Senior Operator OS/VS1	c£5100	Middx Ref. B2824
Operator 2903/JCL	£5000	N. London Ref. M3034
Operator 2904/Exec.	c£5000	City Ref. M2987
Senior Operator 2900/DME	£5000	Hampshire Ref. M2768
Operator 1900/System 4	£4400	East Sussex Ref. M2741
Operator 1900/GII+	£4500	W. London Ref. M2952
Senior Operator 2904	£5000	Surrey Ref. M2994
Trainee Operator 2 'A' levels	£3220	S.W. London Ref. N3098
Trainee Operator O''/'A' levels	£2869	Surrey Ref. N3098
Data Controller 1900/2900	£3869	S.W. London Ref. N2867

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- Looking for a new contract?
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[illegible]

SENIOR DATA CONTROL CLERK

£4,223 +

JULY REVIEW

WEST LONDON

A major brewery, based in West London and utilising twin ICL 2960's have a vacancy for a senior data control clerk.

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- ★ four weeks holiday
- ★ excellent restaurant
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- ★ free drinks — of course!

You will have at least two years experience of controlling computer input/output and be capable of maintaining magnetic tape records.

A sociable shift pattern of 7.30 a.m. to 3.30 p.m. and 11.30 a.m. to 7.30 p.m. is worked on alternate weeks. Interested, then for further information contact REX SCOONES at Croydon office.

Positions open to male & female applicants, please telephone (24 hour service) for initial discussion or write to address below. QUOTE REF. CW 124-9S

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LONDON AND MANCHESTER
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North West INFORMAL INTERVIEWS MAJOR CENTRES

To assist you in finding a suitable position from one of the hundreds of local vacancies throughout the North West which are currently registered with us we have arranged the following interviews next week:—

Monday 30th April 1979	LIVERPOOL St. George's Hotel Lime Street	
Tuesday 1st May 1979	WIGAN Brocket Arms Hotel Mesnes Road	
Wednesday 2nd May 1979	PRESTON Preston Eurocrest Ring Way	BOLTON Bolton Crest Motel Beaumont Road
Thursday 3rd May 1979	MANCHESTER Portland Hotel Piccadilly Gardens	

Vacancies exist for Analysts, Analyst/Programmers, Project Leaders, Real-time Analyst/Programmers, Senior Operations Staff, Field Services Engineers, Sales Persons and Commercial Contract Programmers. We can help most of the people who contact us to find a more rewarding and higher paid career. COME ALONG BETWEEN 4.30 p.m. and 9.00 p.m. AND LET LORIEN HELP YOU — we're looking forward to meeting you.

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OCS House, Servia Road, Leeds LS7 1NJ
Telephone 0532 44185
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PERMANENT TO c £7500

CONTRACT £175 to £350 per week

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ALL NORTH WEST

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COMPUTER WEEKLY

PEC
1979 is the year for new design P11/60's from PEC

CIA link with Shah's police computer

DETAILS of an Iranian secret police computer system which held information on "undesirnbles", and which is understood to have been set up with Central Intelligence Agency co-operation, have been revealed in the US.

Designed for the powerful Savak, which enforced state security under the now deposed Shah, the system was based on twin Digital Equipment PDP-11/34s and featured a micro-based front end transliteration device.

All the input came from Savak's own intelligence network, although some reports suggest that in addition to this, the CIA provided details of international terrorists it wanted to keep under surveillance.

The full impact of the system was not felt however, as delays in the development of the front-end — which converted Farsi script to Latin characters — compounded by the outbreak of political unrest, stopped the system from becoming fully operational.

It was to have replaced a major part of the normal manual checking system, and so was not unlike that used in many countries, storing information on criminal suspects to aid in their arrest or questioning, but it is believed that political and religious offenders were blacklisted as well.

"Any person who was a threat to the State could go on the files," said one US source, "and it was unlikely that their name would ever come off it. The idea seemed to be that passport control desks at major ports would be equipped with terminals linked to the main computers. Checks would then take place very quickly on people attemping to enter or leave the country."

NEWS IN BRIEF

Japan's threat to 3850

IBM now faces competition from Japan for its 3850 mass storage system. The three top Japanese computer manufacturers, Fujitsu, Hitachi and Nippon Electric have co-operated with Nippon Telegraph and Telephone in developing a system for NTT's own use, but all three firms plan to market the system.

The design of the Japanese MSS is similar to the IBM 3850, involving a honeycomb holding thousands of tape cartridges.

Free advice

A FREE return of post advice service for people with personal computer problems is to be started by the Liverpool-based computer store Microdigital. Dealing with written queries only, the staff will attempt to solve any hardware and software problem presented to them relating to the microcomputer and personal computer fields. Their address is 25 Brunswick Street, Liverpool.

Micro show

AN exhibition and seminar on microprocessors in industry, organised by Leeds branch of the BCS, is to be held on May 2 at the Pennine President Hotel in Huddersfield. The event aims to bring to the area an exhibition similar to those often held only in London. For details contact D. J. Sheppard of Datacall, 117 Kirkstall Road, Leeds. Tel: Leeds 459625.

Transfer to 2960s

SYSTEM X software development work by Plessey, GEC and STC has been transferred to a dual ICL 2960 system that the Post Office has just installed at its Derby computer centre.

Systime into US with PDP-11 TP software

SYSTIME will soon be coming to the rescue of Digital Equipment users that are running out of steam under RSTS, with a PDP-11 version of its powerful teleprocessing package, Systel. It will compete directly with DEC's own TRAX transaction processing system announced last year (CW, June 22, 1978).

A version of Systel for the VAX-11/780 has already been announced by Systime (CW, April 19), and this version will enable the Leeds-based firm to add substantial value to VAX systems that it sells to end users.

But the PDP-11 version, scheduled to be formally launched in about two months, will open up a massive market for Systel, enabling the package to spearhead a move into the US market that the firm plans to make later this year.

Computer Weekly reported late last year that Systel was to be sold to VAX users in the US with help from Insac, the international software marketing venture owned by the NEB (CW, December 21/28, 1978), but the PDP-11 version of Systel will make the establishment of a full Systime marketing operation in the US considerably more justifiable.

It looks likely that the US operation will be funded jointly by Systime and Insac. The two concerns have already co-operated closely in the development of Systel, which is being funded by them on a roughly 50/50 basis. The budget for the Systel project is $750,000.

This development cost is justified on the basis that Systel should enable Systime to sell a lot more of its packaged systems, as well as selling Systel licences to existing DEC users.

Systime will soon launch a VAX-based package called the Series 8000, of which Systel will be a vital ingredient. The single user price quoted by Systime for Systel is £15,000.

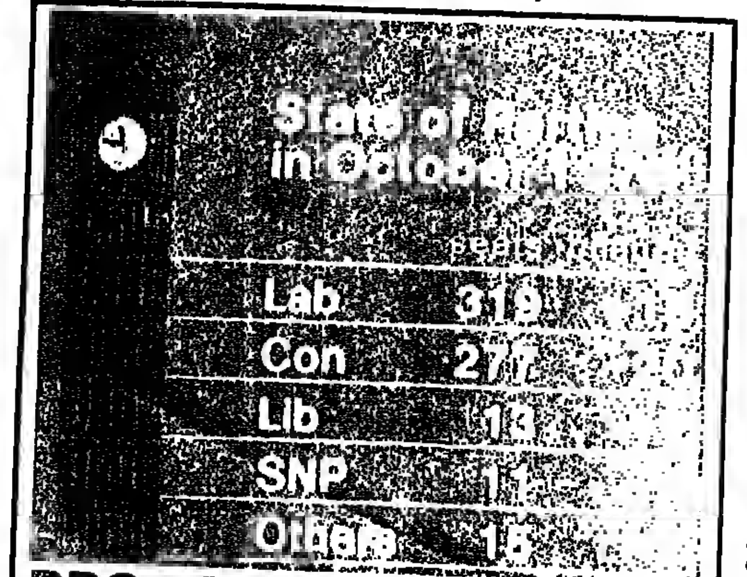
For customers of its PDP-11 based sytems Systime is rewriting stock control and manufacturing applications programs to run under Systel as well as under RSTS.

Key features of Systel

APART from file and terminal I/O management, key features of Systel include multi-threading, hardware/software failure recovery, simultaneous program development and what Systime claims to be comprehensive security facilities. On a VAX-11/780 Systel runs on the unmodified VAX/VMS operating system.

The heart of Systel, according to Systime, is the Tarminsl Management System, TMS, which handles all the terminal I/O. TMS collects input, formats output, supports terminal function keys and implements multi-threading. Another important feature is managing asynchronous overlap of terminal I/O.

Another major Systel component is File Management System, FMS, which manages requests from user tasks to the files they want to access. FMS enables the user to read, write, update and delete records in sequential, relative or indexed files and allows multiple threads of the same task to be processed simultaneously.



BBC election results on Logica/DEC system

REPORTING of the election results by BBC Television on May 3 will be enhanced by a new colour graphics system developed by Logica, with hardware specially built by Digital Equipment. Instead of the crude VDU-style characters used in 1974, high-quality graphics characters will be produced by the computer, together with the automatic construction of coloured histograms, and maps and other pictures.

Results will be keyed in as before, but using a dedicated PDP-11/38 instead of the ICL 1904. The machine queues the results in order of significance, and can display each, either as a full screen or as a caption to go under another picture.

Then there is a wide range of analysis features, such as histograms showing each party's percentage share of the vote or the percentage change, the state of the parties countrywide, computer predictions, swings by regions, and so forth.

Programmers at the BBC and Logica have provided a map of Britain with a little winking light to show where the constituency in question is. Observant viewers will notice, on one of the displays that includes a picture of Big Ben, the hands of the clock always show the correct time.

The graphics are generated by two PDP-11/04s together with custom hardware. The whole package called Icon, has many other possible applications and is to be marketed jointly by Logica and the BBC.

ICL studies Videoton VDUs

THE Hungarian Videoton VT2010 VDU, built around the Intel 8080 chip, is being evaluated by ICL for possible inclusion in its product line. The VDU has scored a significant breakthrough in Wast Garmany, where the Kaufhof department store chain is buying 60 for use in its travel agencies.

Queen's awards to GEC

GEC COMPUTERS has been named in the Queen's awards to Industry. The company receives the award for technological achievement through its development of computers which control multi-active processes and provide software security, without impairing operating speed.

Also granted the Queen's award is Racal Communications, for the range of HF communications receivers which have contributed to improvement in reliability of HF radio communications.

Another GEC company, the Frimley unit of Marconi Space and Defence Systems, has qualified for the Queen's award for export. The company develops electronic equipment for defence, space and oceanographic requirements.

Among the other firms to receive this award are Cable and Wireless, Coopers and Lybrand and Coasfield Electronics. Coopers and Lybrand provide management and economic consultancy services to clients in Europe, Africa, the Middle East, Asia and the Caribbean.

Among the achievements of Cable and Wireless is the contract to provide telecommunication facilities to the Saudi Arabian National Guard, valued in excess of £200 million.

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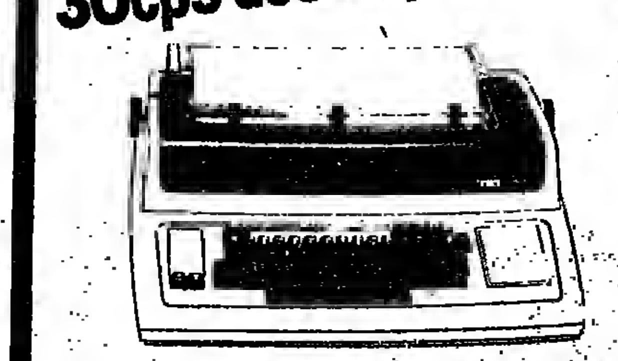

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